

**PRELIMINARY NOISE STUDY**

**OTAY BUSINESS PARK DEVELOPMENT**  
**APN: 648-070-21, TM 5505, ER 93-19-006W**

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## **EXECUTIVE SUMMARY**

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This noise study has been completed to determine the noise impacts associated with the development of the proposed Otay Business Park. The project consists of 58 industrial lots, 2 detention basins and one lift station on a total of 161.6 acres. The project site is located south of Airway Road and east of Alta Road in the County of San Diego.

The results of this analysis indicate that future vehicle noise from Alta Road is the principal source of community noise that will impact the site. No noise sensitive land uses are proposed on the project site; therefore no impacts from Alta Road are anticipated. Existing with project noise levels would be approximately 74.2 dBA CNEL at the three residences located on the north side of Otay Mesa Road between Sanyo Drive and Enrico Fermi Drive. The project's contribution to the existing noise environment at these residences is 3.9 dBA CNEL and is considered significant. The future conditions with the SR-905 and project noise level at the three residences are anticipated to be lower because the traffic volumes reflected in the project's traffic study, based on the Market Study and a 13% project buildout, and because traffic patterns from the project and cumulative projects will travel along SR-905 instead of Otay Mesa Road.

It would require a 14-foot-high minimum sound wall at the residences to reduce traffic noise levels from 74.2 dBA CNEL to below the level of significance. Therefore, mitigation for these impacts is not feasible and project transportation-related impacts to NSLUs would be significant and unavoidable. This cumulatively significant off-site impact at the existing homes is consistent with the findings in the East Otay Mesa Specific Plan Environmental Impact Report (EOMSP EIR), 1994.

The project may be required to incorporate mitigation measures such as parapet walls on the rooftop, individual barriers at each mechanical ventilation unit, barriers at the project's property lines and/or time and size restrictions for the equipment. However, due to the large number of unknown variables affecting the property line operational noise level, it is not possible to project an exact noise level or to determine if the project will need mitigation

in order to meet the County of San Diego and East Otay Mesa Specific Plan Subarea 2 standards. Once a site-specific plan for each lot is determined, a property line noise analysis must be completed for each property line on the project site to determine compliance with the property line standards and any known adjacent habitat area.

The Country of Mexico is located to the south across a separate industrial parcel and a Border Patrol Corridor. The nearest land uses in Mexico are 330 to 490 feet from the project's southern property line. With a property line noise level of 75 dBA Leq, fifty feet from the source, the noise levels would be reduced to 58.6 dBA Leq at a distance of 330-feet to the closest land uses. Along the border, directly south of this project, is a heavily traveled trucking corridor and Border Patrol corridor that increases the ambient noise levels above the anticipated 58.6 dBA Leq. Therefore, the project related noise levels at the border of Mexico are below the ambient conditions and no impacts are anticipated. Additionally a 16-foot high border fence exists along the border that will help reduce noise levels in Mexico and no impacts are anticipated.

Results of the analysis indicate that the project will meet the County of San Diego 75 dBA CNEL standard for grading activities at all project property lines without mitigation at a distance as 160-feet. If cumulative grading operations are simultaneously occurring at a shared property line noise levels may exceed the County threshold of 75 dBA. The two separate operations would be considered overlapping and would act as a single noise generator. To reduce the noise levels below the County's 75 dBA threshold the construction operations would need to be moved to a distance of 225-feet from the shared property line. This increase in distance would reduce the noise levels below the County's property line standard of 75 dBA.

Grading activities should be avoided during the nesting/breeding season. If grading activities are anticipated to occur during the breeding/nesting season as the project is developed and a sensitive habitat area has been identified by the project's biologist, it is recommended that a specific mitigation plan based upon the location of the identified habitat be identified by a County certified acoustical engineer. This mitigation plan

would determine the height and location of any temporary barriers or the reduction of equipment usage, if needed. The biological mitigation plan, if needed, should also include noise monitoring prior to and during the beginning of the nesting/breeding season in coordination with the Project's Biologist to ensure compliance with applicable standards. The U.S. Fish and Wildlife Service (USFWS) recommended that hourly noise levels not exceed 60 dBA Leq or ambient conditions, whichever is greater; to protect the Gnatcatcher and other endangered bird species. The County of San Diego has adopted this standard for all sensitive species.

Prior to the approval of any Site Plan for any development proposal within the Lots 43 and 45-55, and 57-59 an acoustical analysis must be performed, by a County-approved acoustical engineer, demonstrating that Project noise would not substantially contribute to future exterior noise levels at the on- and/or off-site biological open space areas in excess of 60 dBA Leq. If ambient noise levels in the biological open space exceed 60 dBA Leq prior to the development of Lots 43 and 45-55, and 57-59, the analysis shall demonstrate that the Project-related contributions toward cumulative noise levels in the biological open space would be equal to a 0.0 net dBA Leq increase above ambient conditions that exist at the time the study was prepared.

Noise levels from the installation of the sewer lift station in the southwest corner of the site located in Lot 38 will be 45 dBA Leq at 15-feet from the access hatch and will comply with the 75 dBA standard without mitigation. In fact, the project would meet the County of San Diego's most restrictive property line threshold of 45 dBA Leq with no mitigation.

There are no existing or proposed activities on or near the proposed project site which would cause any significant vibration levels to the buildings on the project site and no impacts are anticipated.

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## **1.0 INTRODUCTION**

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### **1.1 Project Location and Description**

This noise study has been completed to determine the noise impacts associated with the development of the proposed Otay Business Park. The project is located at 32°33' 30" N and 116°55' 01" W, south of Airway Road and east of Alta Road in the County of San Diego.

The project consists of 58 industrial lots, 2 detention basins and one lift station on a total of 161.6 acres. The lots range in size from 0.9 to 5 acres and no specific uses for each lot have been identified.

The project does not include any on-site noise sensitive land uses at this time. The site is surrounded by open space in all directions and lies directly north of the U.S./Mexico Border. The general location of the project is shown on the Location Map, Exhibit 1-A. The site plan used for this analysis is shown on Exhibit 1-B.

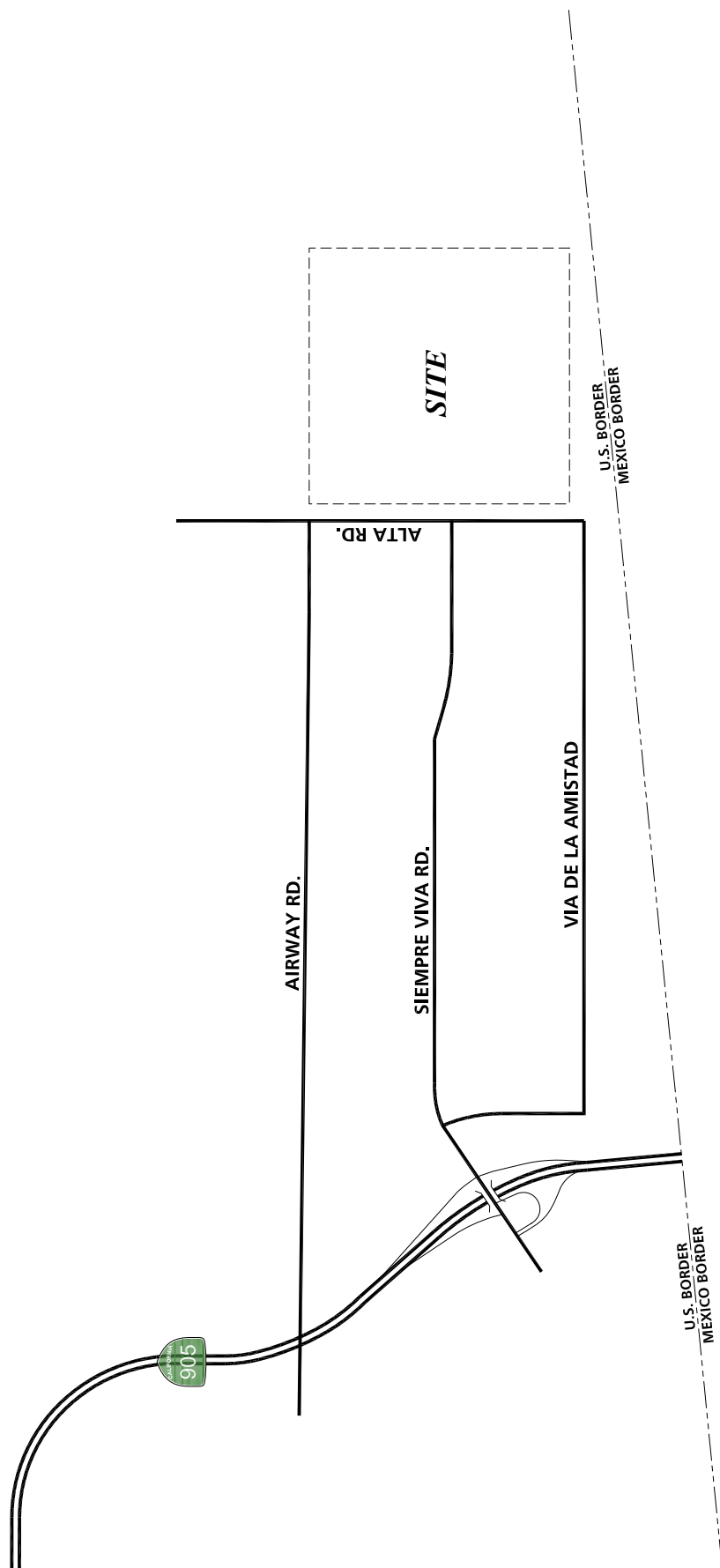
### **1.2 Applicable Noise Regulations and Standards**

#### **County of San Diego Standards**

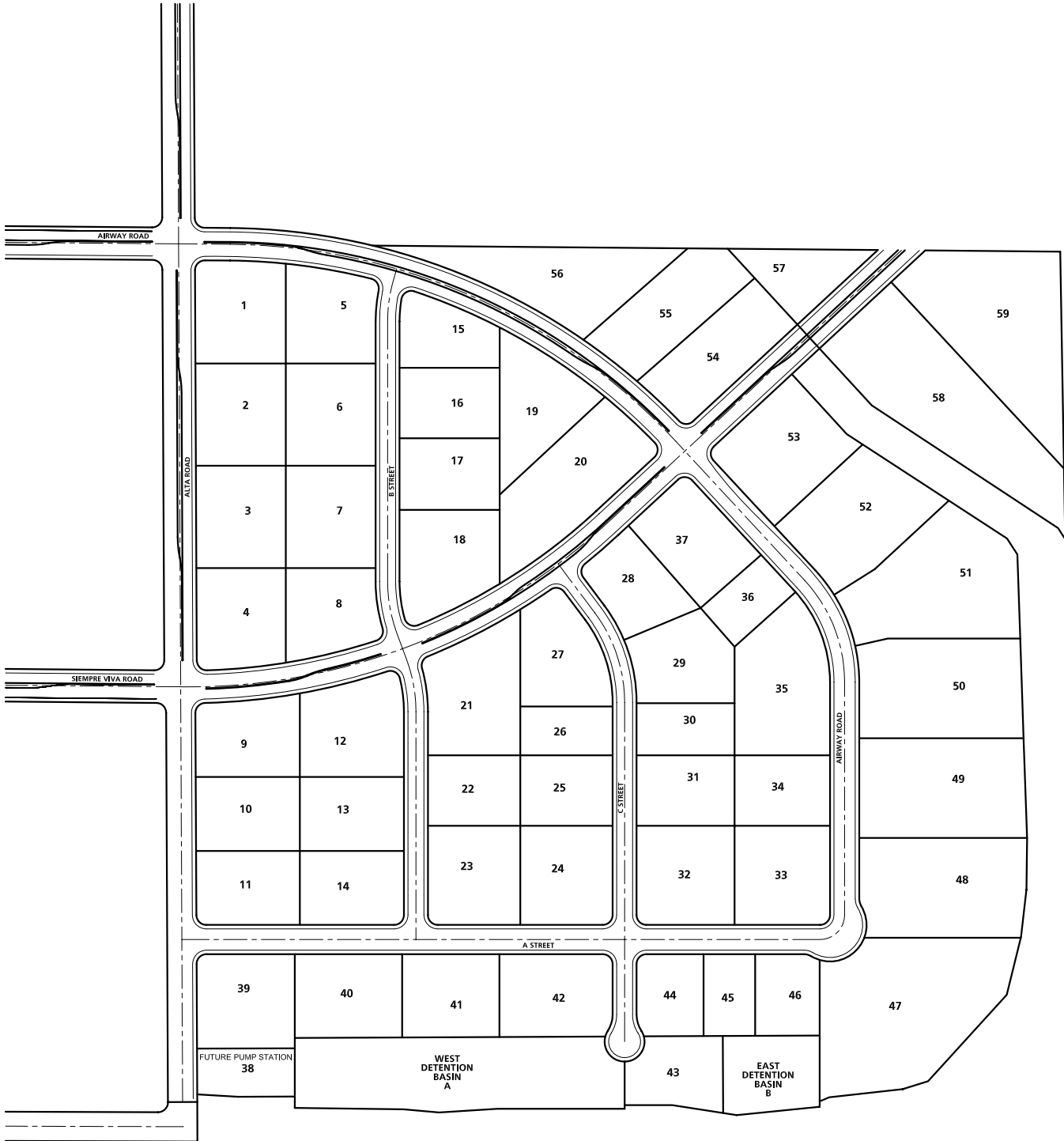
The County of San Diego addresses two separate types of noise sources through the CEQA process: (1) mobile, and (2) stationary. In the context of this noise analysis, the noise levels associated with the proposed Otay Business Park are regulated by the County of San Diego noise guidelines for determining significance the Noise Ordinance, and the East Otay Mesa Specific Plan Subarea 2. Those guidelines and standards are summarized below and provided as Appendix "A".

According to the stationary source exterior noise standards, no person shall operate any source of sound at any location within the County or allow the creation

# EXHIBIT 1-A LOCATION MAP



# EXHIBIT 1-B SITE PLAN



of any noise on a property which causes the noise levels to exceed the exterior noise limits at the property boundary within all non-industrial zones. The proposed project site is within the East Otay Mesa Specific Plan Subarea 2 which designates the project site and all adjacent properties as industrial. The approved East Otay Mesa Specific Plan Subarea 2 states that noise levels limits are governed under Section 6310d of the zoning ordinance, which sets an exterior noise limit for industrial land uses of 75 dBA Leq for daytime hours and nighttime hours. The Country of Mexico is located to the south across a separate industrial parcel and a Border Patrol Corridor. No applicable standard is easily defined for the uses in Mexico, but based upon a recent aerial photograph industrial uses exist in Mexico adjacent to the site. For the purposes of this analysis the southern property was treated as an industrial use with a similar standard of 75 dBA Leq.

It shall be unlawful to operate any construction equipment so as to cause at or beyond the property line of any property upon which a legal dwelling unit is located an average sound level greater than 75 decibels between the hours of 7 a.m. and 7 p.m.

### 1.3 Environmental Settings & Existing Conditions

#### 1.3.1 Settings & Locations

The project proposes a Tentative Subdivision Map (TM) to subdivide 161.6 acres into 58 industrial lots, ranging in size from 0.9 to 5 acres. No specific uses have been identified. The project site (Assessor's Parcel Number 648-070-21) is located immediately north of the U.S./Mexico border, approximately 0.5 mile east of Enrico Fermi Drive, in East Otay Mesa, within unincorporated San Diego County. The property also lies immediately southeast of and adjacent to the future intersection of Alta Road and Airway Road. Access would be primarily from Alta Road along the west of the property line. Siempre Viva Road and Airway Road would

be extended from the west and cross the property. Siempre Viva will transition to the north as Loop Road. The future alignment of State Route 11 may include a portion of the property.

#### 1.3.2 Existing Noise Conditions

The project is located south of Airway Road and east of Alta Road in the County of San Diego. Existing noise occurs mainly from environmental ambient noise with minimal noise from Alta Road, Airway Road and Siempre Viva Road as they have yet to be extended through the proposed property. The project site is currently vacant; therefore no on-site operational noise exists.

### 1.4 Methodology and Equipment

#### 1.4.1 Noise Measuring Methodology and Procedures

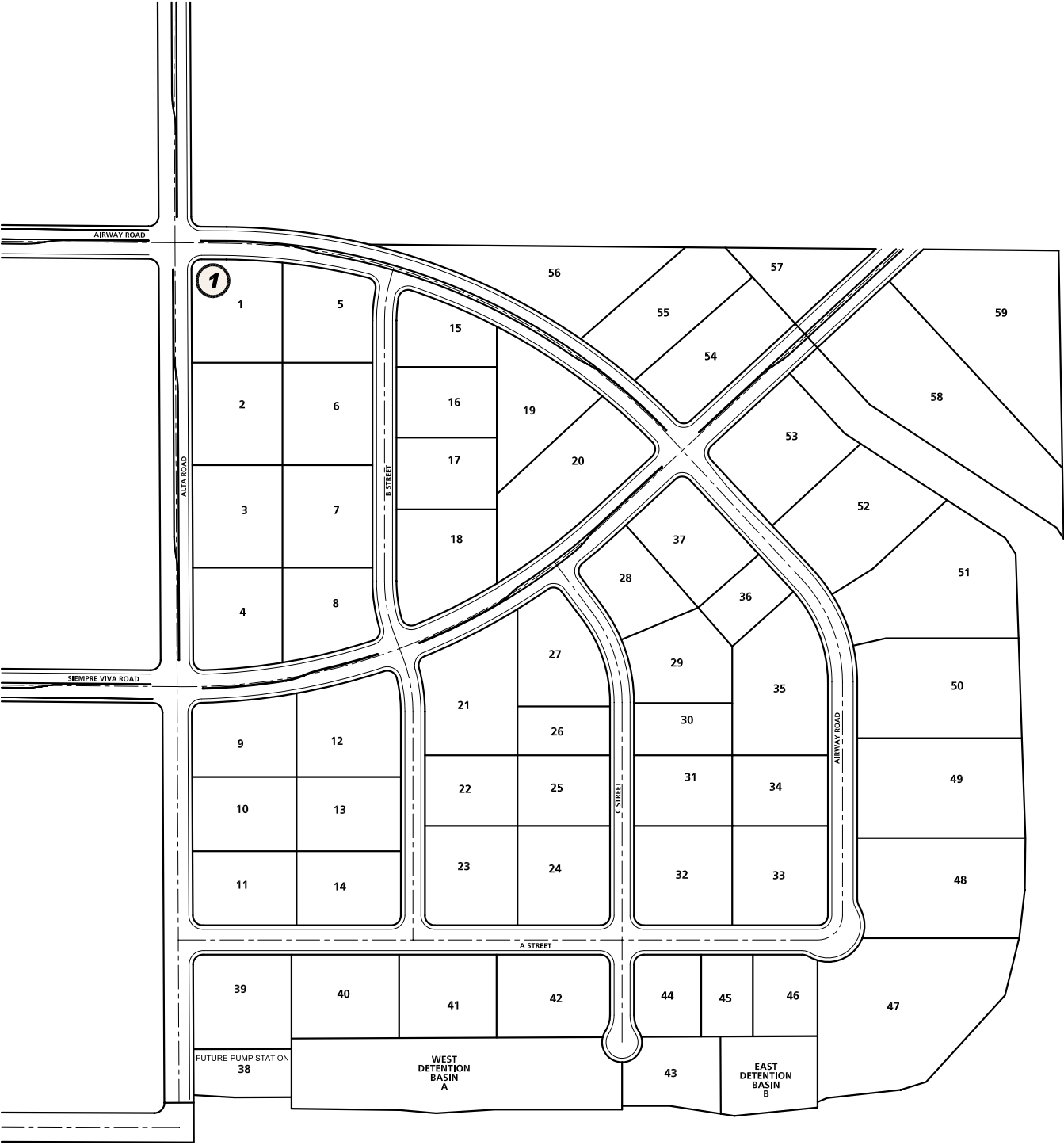
To determine the existing noise level environment and to assess potential noise impacts, measurements were taken at a worse-case location adjacent to Alta Road. The noise measurement was recorded by Urban Crossroads, Inc. between the hours of 2:10 p.m. and 2:30 p.m. on July 24, 2008. Appendix "B" includes a summary of the monitoring data.

Noise measurements were taken using a Larson-Davis LxT Type 1 precision sound level meter, programmed, in "slow" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200.

The noise monitoring location was selected based on the respective impact potential. Monitoring location 1 was located approximately along the existing Alta Road. The noise monitoring location is provided in Exhibit 1-C.

EXHIBIT 1-C

# NOISE MONITORING LOCATION



**LEGEND:**

**1** = NOISE MONITORING LOCATION



The results of the noise level measurements are presented in Table 1-1. The noise measurements were monitored for a minimum time period of 10 minutes. The existing ambient Leq noise levels measured in the area of the project during the afternoon hour were found to be 45.7 dBA Leq at monitoring location 1. The existing noise levels in the project area consist primarily of ambient environmental noise. There were zero vehicles driven on Alta Road during the measurement period.

#### 1.4.2 Noise Modeling Software

The projected roadway noise impacts from vehicular traffic were projected using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108 (the "FHWA Model"). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

Hard site conditions were used to develop noise contours and analyze noise impacts for all receptors. Hard site conditions provide a worse-case analysis.

**TABLE 1-1**

**EXISTING (AMBIENT) NOISE LEVEL MEASUREMENTS<sup>1</sup>**

OBSERVER LOCATION <sup>2</sup>	DESCRIPTION	PRIMARY NOISE SOURCE	MEASURED NOISE LEVELS (dBA Leq)	MEASURED NOISE LEVELS (dBA CNEL)
1	Located along the existing Alta Road	Ambient Environmental Noise	45.7	45.8

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<sup>1</sup> Noise measurements taken for a minimum period of 10 minutes by Urban Crossroads Inc

## Noise Calculations

Noise has been simply defined as "unwanted sound". Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak hour Leq is the noise metric used by Caltrans for all traffic noise impact analyses.

The Community Noise Equivalent Level (CNEL) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of five decibels to sound levels in the evening from 7 p.m. to 10 p.m., and the addition of ten decibels to sound levels at night between 10 p.m. to 7 a.m. These additions are made to the sound levels at these time periods because during the evening and night hours, with the decrease in overall amount and loudness of noise generated, when compared to daytime hours, there is an increased sensitivity to sounds. For this reason the sound appears louder and it is weighted accordingly. The County of San Diego relies on the CNEL noise standard to assess transportation related impacts on noise sensitive land uses.

According to the Caltrans Technical Noise Supplement, sound from a small localized source (approximating a “point” source) radiates uniformly outward as it travels away from the source. The sound level attenuates or drops-off at a rate of 6 dBA for each doubling of distance. A drop-off rate of 6 dBA per doubling of distance was used for all fixed noise sources.

Noise control is the process of obtaining an acceptable noise environment for a particular observation point or receiver by controlling the noise source, transmission path, receiver or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to any and all of these three elements and a noise barrier is most effective when placed close to the noise source or receiver.

To account for the ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft site and hard site conditions. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. A drop-off rate of 4.5 dBA per doubling of distance is typically observed over soft ground with landscaping, as compared with a 3.0 dBA drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. To predict the worse-case future noise environment, hard site conditions were used for all floors in this analysis based on the topography in the site area and the monitoring results.

## **2.0 NOISE SENSITIVE LAND USES (NSLUs)**

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### **2.1 Guidelines for the Determination of Significance**

Project implementation will result in the exposure of any on- or off- site, existing or reasonably foreseeable future NSLU to exterior or interior noise (including noise generated from the project, together with noise from the roads [existing and planned], railroads, airports, heliports and all other noise sources) in excess of any of the following:

A. Exterior Locations:

- i. 60 dB (CNEL); or
- ii. An increase of 10 dB (CNEL) over pre-existing noise.

In the case of single-family residential detached NSLUs, exterior noise shall be measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum area:

(1) Net lot area up to 4,000 square feet:	400 square feet
(2) Net lot area 4,000 square feet to 10 acres:	10% of net lot area
(3) Net lot area over 10 acres:	1 acre

For all other projects, exterior noise shall be measured at all exterior areas provided for group or private usable open space.

B. Interior Locations:

45 db (CNEL) except for the following cases:

- i. Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities), the interior one-hour average sound level due to noise outside should not exceed 50 decibels (A).

- ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

## 2.2 Potential Noise Impacts

The results of this analysis indicate that future vehicle noise from Alta Road is the principal source of community noise that will impact the site. No noise sensitive land uses are proposed on the project site; therefore no impacts from Alta Road are anticipated.

## 2.3 Mitigated Noise Impacts

There is no exterior noise sensitive land uses proposed on the project site, therefore mitigation measures are not necessary to meet the County of San Diego standards.

## 2.4 Cumulative Noise Impacts

Tables 2-1 and 2-2 present the FHWA Traffic Noise Prediction Model roadway parameters used in this analysis. The cumulative conditions include the completion of the SR-905 and all other roadway improvements and modifications. The roadway classifications were modified for this condition to reflect these changes. Hard site conditions were used to develop noise contours and analyze noise impacts for all receptors. Hard site conditions provide a worse-case analysis.

Table 2-3 presents the hourly traffic flow distributions (vehicle mix) used for this analysis. The future traffic noise model utilizes a vehicle mix of 72% Autos, 16% Medium Trucks and 12% Heavy Trucks for all analyzed roadway segments. This worse-case vehicle mix was taken from a previously accepted report completed for Spring Canyon Ranch. The vehicle mix provides the hourly distribution

**TABLE 2-1**

**EXISTING ROADWAY PARAMETERS<sup>1</sup>**

ROADWAY	SEGMENT (Jurisdiction) <sup>2</sup>	EXISTING ROADWAY CLASSIFICATION <sup>3</sup>
Interim SR-905	Heritage Rd. To Cactus Rd.	6-Lane Prime Arterial
Interim SR-905	Cactus Rd. to Britannia Blvd.	6-Lane Prime Arterial
Interim SR-905	Britannia Blvd. to La Media Rd.	6-Lane Prime Arterial
Interim SR-905	La Media Rd. to Piper Ranch Rd.	5-Lane Major Road
Interim SR-905	Piper Ranch Rd. to SR-125	6-Lane Prime Arterial
Otay Mesa Road	SR-125 to Interim SR-905 Connector	5-Lane Major Road
Otay Mesa Road	Interim SR-905 Connector to Harvest Rd.	5-Lane Major Road
Otay Mesa Road	Harvest Rd. to Sanyo Ave.	4-Lane Major Road
Otay Mesa Road	Sanyo Ave. to Enrico Fermi Dr.	Light Collector
Airway Road	Sanyo Ave. to Paseo de La Americas	2-Lane Collector
Airway Road	Paseo de La Americas to Michael Faraday Dr.	Light Collector
Airway Road	Michael Faraday Dr. to Enrico Fermi Dr.	Light Collector
Siempre Viva Road	SR-905 to Paseo de Las Americas	6-Lane Prime Arterial
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	4-Lane Collector
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	4-Lane Collector
La Media Road	Interim SR-905 (Otay Mesa Rd.) to Airway Rd.	4-Lane Collector
SR-125	North of Otay Mesa Rd.	4-Lane Freeway
Existing SR-905	Airway Rd. to Siempre Viva Rd.	4-Lane Major Road
Existing SR-905	South of Siempre Viva Rd.	4-Lane Freeway
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	4-Lane Collector
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	Light Collector
Enrico Fermi Drive	Airway Rd. to Siempre Viva Rd.	4-Lane Major Road

1 Off-site analysis utilized hard-site conditions for all observers.

2 Ci=City, Co=County, SBX=South Bay Expressway, Ca=Caltrans

3 According to the Traffic Impact Analysis prepared by Darnell & Associates dated April, 2010.

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**TABLE 2-2**

**FUTURE WITH SR-905 ROADWAY PARAMETERS<sup>1</sup>**

ROADWAY	SEGMENT (Jurisdiction) <sup>2</sup>	EXISTING ROADWAY CLASSIFICATION <sup>2</sup>
Otay Mesa Road	Heritage Rd. To Cactus Rd.	6-Lane Prime Arterial
Otay Mesa Road	Cactus Rd. to Britannia Blvd.	6-Lane Prime Arterial
Old Otay Mesa Road	SR-125 to Harvest Rd.	5-Lane Major Road
Old Otay Mesa Road	Harvest Rd. to Sanyo Ave.	4-Lane Major Road
Old Otay Mesa Road	Sanyo Ave. to Vann Centre	Light Collector
Old Otay Mesa Road	Vann Centre to Enrico Fermi Dr.	Light Collector
Old Otay Mesa Road	Enrico Fermi Dr. to Alta Rd.	Light Collector
Airway Road	La Media Rd. to SR-905	2-Lane Collector
Airway Road	SR-905 to Sanyo Ave.	4-Lane Major Road
Airway Road	Sanyo Ave. to Paseo de La Americas	4-Lane Major Road
Airway Road	Paseo de La Americas to Michael Faraday Dr.	Light Collector
Airway Road	Michael Faraday Dr. to Enrico Fermi Dr.	Light Collector
Siempre Viva Road	Drucker Ln. to SR-905	6-Lane Prime Arterial
Siempre Viva Road	SR-905 to Paseo de Las Americas	6-Lane Prime Arterial
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	4-Lane Collector
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	4-Lane Collector
SR-125	North of Otay Mesa Rd.	4-Lane Freeway
Existing SR-905	South of Siempre Viva Rd.	6-Lane Freeway
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	4-Lane Collector
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	Light Collector
Alta Road	Calzada De La Fuente to Paseo De La Fuente	Light Collector
Alta Road	Paseo De La Fuente to Otay Mesa Rd.	Light Collector
New SR-905 Facility	West of La Media Rd.	6-Lane Freeway
New SR-905 Facility	East of La Media Rd.	6-Lane Freeway

1 Off-site analysis utilized hard-site conditions for all observers.

2 Ci=City, Co=County, SBX=South Bay Expressway, Ca=Caltrans

3 According to the Traffic Impact Analysis prepared by Darnell & Associates dated April, 2010.

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**TABLE 2-3**

**SEGMENT ANALYSIS HOURLY TRAFFIC FLOW DISTRIBUTION**

MOTOR-VEHICLE TYPE	DAYTIME (7 AM TO 7 PM)	EVENING (7 PM TO 10 PM)	NIGHT (10 PM TO 7 AM)	TOTAL % TRAFFIC FLOW
Automobiles	80.0%	7.0%	13.0%	72.00%
Medium Trucks	80.0%	7.0%	13.0%	16.00%
Heavy Trucks	80.0%	7.0%	13.0%	12.00%

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percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model.

To assess the off-site noise level impacts associated with development of the proposed Otay Business Park noise contours were developed for the following traffic scenarios:

Existing: This scenario refers to the existing present-day noise conditions, without construction of the proposed project.

Existing with project: This scenario refers to the existing present-day noise conditions, with construction of the proposed project. This corresponds to the completion of the project's buildout.

Cumulative with SR-905 plus Project: This scenario refers to the existing condition which would exist once all phases of the SR-905 facilities are constructed and operational with the proposed project. This is anticipated to occur in year 2015. This corresponds to the completion of the project's buildout plus a "buffer" to include additional future cumulative developments.

Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway. CNEL noise contours are determined below for the 55, 60, 65 and 70 dBA noise levels for first floor receptors. The noise contours calculations are included in Appendix "C".

The average daily traffic volumes used for the off-site analysis in this study are presented in Tables 2-4 through 2-7 for the existing and cumulative conditions. The traffic volumes were obtained from the Traffic Impact Analysis prepared by Darnell & Associates dated April, 2010 and directed by the County of San Diego based on a Market Study prepared by ERA in March 2010. The distance from the centerline of the roadway to the first floor CNEL contours for roadways in the

TABLE 2-4

## EXISTING CONDITIONS NOISE CONTOURS

ROAD	SEGMENT	AVERAGE DAILY TRAFFIC <sup>1</sup>	CNEL AT 100 FEET (dBA)	DISTANCE TO CONTOUR (FEET)			
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Interim SR-905	Heritage Rd. To Cactus Rd.	64.3	81.7	1,628	5,148	16,281	51,485
Interim SR-905	Cactus Rd. to Britannia Blvd.	71.1	82.1	1,800	5,691	17,998	56,914
Interim SR-905	Britannia Blvd. to La Media Rd.	59.0	81.3	1,494	4,724	14,939	47,241
Interim SR-905	La Media Rd. to Piper Ranch Rd.	44.5	79.3	939	2,970	9,393	29,704
Interim SR-905	Piper Ranch Rd. to SR-125	43.1	80.0	1,092	3,452	10,915	34,518
Otay Mesa Road	SR-125 to Interim SR-905 Connector	16.7	75.1	352	1,113	3,520	11,132
Otay Mesa Road	Interim SR-905 Connector to Harvest Rd.	9.7	72.7	205	650	2,054	6,497
Otay Mesa Road	Harvest Rd. to Sanyo Ave.	8.2	71.9	169	535	1,692	5,351
Otay Mesa Road	Sanyo Ave. to Enrico Fermi Dr.	9.1	70.3	118	373	1,179	3,727
Airway Road	Sanyo Ave. to Paseo de La Americas	5.6	68.2	73	230	726	2,296
Airway Road	Paseo de La Americas to Michael Faraday Dr.	4.5	67.3	59	185	585	1,850
Airway Road	Michael Faraday Dr. to Enrico Fermi Dr.	2.9	65.3	38	119	377	1,191
Siempre Viva Road	SR-905 to Paseo de Las Americas	26.7	77.9	675	2,134	6,749	21,341
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	9.9	71.7	162	511	1,616	5,112
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	6.4	69.8	105	333	1,053	3,331
La Media Road	Interim SR-905 (Otay Mesa Rd.) to Airway Rd.	15.2	73.5	249	787	2,489	7,872
SR-125	North of Otay Mesa Rd.	30.0	78.2	728	2,301	7,277	23,012
Existing SR-905	Airway Rd. to Siempre Viva Rd.	37.8	78.5	778	2,461	7,783	24,612
Existing SR-905	South of Siempre Viva Rd.	28.0	77.9	679	2,148	6,792	21,478
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	2.7	66.0	44	138	436	1,379
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	2.7	65.0	35	109	346	1,094
Enrico Fermi Drive	Airway Rd. to Siempre Viva Rd.	7.1	71.2	146	463	1,463	4,627

<sup>1</sup> According to the Traffic Impact Analysis prepared by Darnell & Associates dated April, 2010.

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TABLE 2-5

## EXISTING PLUS PROJECT CONDITIONS NOISE CONTOURS

ROAD	SEGMENT	AVERAGE DAILY TRAFFIC <sup>1</sup>	CNEL AT 100 FEET (dBA)	DISTANCE TO CONTOUR (FEET)			
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Interim SR-905	Heritage Rd. To Cactus Rd.	85.4	82.9	2,162	6,838	21,623	68,377
Interim SR-905	Cactus Rd. to Britannia Blvd.	92.5	83.3	2,342	7,407	23,424	74,074
Interim SR-905	Britannia Blvd. to La Media Rd.	81.1	82.7	2,054	6,494	20,535	64,937
Interim SR-905	La Media Rd. to Piper Ranch Rd.	67.6	81.1	1,427	4,512	14,268	45,119
Interim SR-905	Piper Ranch Rd. to SR-125	66.5	81.9	1,685	5,329	16,851	53,286
Otay Mesa Road	SR-125 to Interim SR-905 Connector	40.1	78.9	847	2,677	8,466	26,771
Otay Mesa Road	Interim SR-905 Connector to Harvest Rd.	26.5	77.1	559	1,767	5,587	17,667
Otay Mesa Road	Harvest Rd. to Sanyo Ave.	25.0	76.7	514	1,625	5,138	16,246
Otay Mesa Road	Sanyo Ave. to Enrico Fermi Dr.	22.5	74.2	291	919	2,907	9,194
Airway Road	Sanyo Ave. to Paseo de La Americas	9.0	70.2	116	366	1,157	3,658
Airway Road	Paseo de La Americas to Michael Faraday Dr.	7.9	69.7	102	322	1,017	3,217
Airway Road	Michael Faraday Dr. to Enrico Fermi Dr.	6.3	68.7	81	256	809	2,558
Siempre Viva Road	SR-905 to Paseo de Las Americas	41.7	79.8	1,056	3,341	10,564	33,407
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	25.0	75.7	408	1,290	4,080	12,903
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	21.5	75.0	352	1,112	3,517	11,123
La Media Road	Interim SR-905 (Otay Mesa Rd.) to Airway Rd.	15.9	73.7	260	822	2,599	8,219
SR-125	North of Otay Mesa Rd.	36.7	79.1	890	2,815	8,902	28,149
Existing SR-905	Airway Rd. to Siempre Viva Rd.	51.2	79.8	1,054	3,333	10,539	33,328
Existing SR-905	South of Siempre Viva Rd.	29.7	78.2	720	2,276	7,198	22,762
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	6.0	69.5	98	311	984	3,110
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	17.8	73.2	229	724	2,291	7,244
Enrico Fermi Drive	Airway Rd. to Siempre Viva Rd.	8.8	72.2	181	572	1,808	5,716

<sup>1</sup> According to the Traffic Impact Analysis prepared by Darnell & Associates dated April, 2010.

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TABLE 2-6

## EXISTING PLUS CUMULATIVE WITH SR-905 CONDITIONS NOISE CONTOURS

ROAD	SEGMENT	AVERAGE DAILY TRAFFIC <sup>1</sup>	CNEL AT 100 FEET (dBA)	DISTANCE TO CONTOUR (FEET)			
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Otay Mesa Road	Heritage Rd. To Cactus Rd.	28.9	78.2	731	2,310	7,306	23,104
Otay Mesa Road	Cactus Rd. to Britannia Blvd.	31.8	78.6	806	2,548	8,058	25,483
Old Otay Mesa Road	SR-125 to Harvest Rd.	31.0	77.7	654	2,068	6,539	20,680
Old Otay Mesa Road	Harvest Rd. to Sanyo Ave.	10.5	72.9	217	685	2,166	6,849
Old Otay Mesa Road	Sanyo Ave. to Vann Centre	2.9	65.4	38	119	378	1,194
Old Otay Mesa Road	Vann Centre to Enrico Fermi Dr.	2.8	65.2	36	114	362	1,143
Old Otay Mesa Road	Enrico Fermi Dr. to Alta Rd.	13.7	72.1	177	560	1,770	5,598
Airway Road	La Media Rd. to SR-905	8.7	70.1	112	353	1,118	3,535
Airway Road	SR-905 to Sanyo Ave.	5.6	70.2	115	364	1,151	3,641
Airway Road	Sanyo Ave. to Paseo de La Americas	13.7	74.1	282	891	2,816	8,906
Airway Road	Paseo de La Americas to Michael Faraday Dr.	1.7	63.1	23	71	225	713
Airway Road	Michael Faraday Dr. to Enrico Fermi Dr.	2.7	65.0	35	110	349	1,102
Siempre Viva Road	Drucker Ln. to SR-905	20.5	76.7	519	1,642	5,193	16,423
Siempre Viva Road	SR-905 to Paseo de Las Americas	30.2	78.4	764	2,417	7,642	24,165
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	9.9	71.7	162	511	1,616	5,112
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	6.4	69.8	105	333	1,053	3,331
SR-125	North of Otay Mesa Rd.	11.5	74.0	278	881	2,785	8,807
Existing SR-905	South of Siempre Viva Rd.	70.4	82.1	1,784	5,640	17,835	56,400
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	12.2	72.6	200	632	1,997	6,316
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	10.8	71.0	139	441	1,394	4,409
Alta Road	Calzada De La Fuente to Paseo De La Fuente	6.8	69.0	88	277	876	2,770
Alta Road	Paseo De La Fuente to Otay Mesa Rd.	6.8	69.0	88	277	876	2,770
New SR-905 Facility	West of La Media Rd.	85.2	82.9	2,156	6,819	21,564	68,190
New SR-905 Facility	East of La Media Rd.	73.1	82.3	1,850	5,852	18,505	58,517

<sup>1</sup> According to the Traffic Impact Analysis prepared by Darnell & Associates dated April, 2010.

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TABLE 2-7

## EXISTING PLUS CUMULATIVE PLUS PROJECT WITH SR-905 CONDITIONS NOISE CONTOURS

ROAD	SEGMENT	AVERAGE DAILY TRAFFIC <sup>1</sup>	CNEL AT 100 FEET (dBA)	DISTANCE TO CONTOUR (FEET)			
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Otay Mesa Road	Heritage Rd. To Cactus Rd.	29.9	78.4	756	2,391	7,561	23,909
Otay Mesa Road	Cactus Rd. to Britannia Blvd.	32.8	78.8	831	2,629	8,313	26,287
Old Otay Mesa Road	SR-125 to Harvest Rd.	33.3	78.1	703	2,224	7,034	22,243
Old Otay Mesa Road	Harvest Rd. to Sanyo Ave.	12.9	73.8	265	837	2,648	8,375
Old Otay Mesa Road	Sanyo Ave. to Vann Centre	5.3	67.9	68	215	680	2,151
Old Otay Mesa Road	Vann Centre to Enrico Fermi Dr.	5.5	68.1	71	224	707	2,237
Old Otay Mesa Road	Enrico Fermi Dr. to Alta Rd.	16.1	72.8	207	655	2,073	6,555
Airway Road	La Media Rd. to SR-905	9.7	70.5	125	394	1,247	3,943
Airway Road	SR-905 to Sanyo Ave.	6.6	70.9	136	429	1,358	4,295
Airway Road	Sanyo Ave. to Paseo de La Americas	16.0	74.8	330	1,043	3,299	10,431
Airway Road	Paseo de La Americas to Michael Faraday Dr.	4.1	66.8	53	167	528	1,669
Airway Road	Michael Faraday Dr. to Enrico Fermi Dr.	5.4	68.0	69	220	694	2,196
Siempre Viva Road	Drucker Ln. to SR-905	21.2	76.9	536	1,696	5,363	16,959
Siempre Viva Road	SR-905 to Paseo de Las Americas	53.6	80.9	1,358	4,293	13,577	42,934
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	22.2	75.2	363	1,147	3,627	11,469
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	19.1	74.5	312	987	3,121	9,871
SR-125	North of Otay Mesa Rd.	13.5	74.7	327	1,035	3,272	10,348
Existing SR-905	South of Siempre Viva Rd.	76.1	82.4	1,928	6,096	19,277	60,958
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	13.6	73.0	222	701	2,216	7,008
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	16.8	73.0	217	687	2,172	6,869
Alta Road	Calzada De La Fuente to Paseo De La Fuente	10.4	70.8	134	422	1,336	4,224
Alta Road	Paseo De La Fuente to Otay Mesa Rd.	10.0	70.7	128	406	1,284	4,061
New SR-905 Facility	West of La Media Rd.	102.2	83.7	2,589	8,186	25,888	81,864
New SR-905 Facility	East of La Media Rd.	90.2	83.2	2,283	7,219	22,829	72,192

<sup>1</sup> According to the Traffic Impact Analysis prepared by Darnell & Associates dated April, 2010.

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proposed project's vicinity are also presented in Tables 2-4 through 2-7. The noise contours do not take into account the effect of any existing noise barriers or topography that may affect ambient noise levels.

Direct and cumulative roadway noise impacts would be considered significant if the project increases noise levels for a noise sensitive land use by 3 dBA CNEL and if: (1) the existing noise levels already exceed the 60 dBA CNEL County of San Diego residential standard or the 65 dBA CNEL City of San Diego standard, or (2) the project increases noise levels in the area adjacent to the roadway segment from below the 60 and 65 dBA CNEL standards to above 60 or 65 dBA CNEL depending if the area is in the City or County.

The County of San Diego requires that the “cumulative without project” and the “cumulative with project” scenarios are compared to determine if significant impacts occur. Project generated cumulative roadway noise impacts would be considered significant if the project raises the “cumulative without project” noise level by 1 dBA or greater.

Table 2-8 presents the comparison of the Existing Year with and without project noise levels for first floor receptors. The roadway noise impacts will increase from 0.2 dBA CNEL to 8.2 dBA CNEL with the development of the proposed project.

Table 2-9 presents a comparison of the Existing Year to Cumulative Year with and without project noise levels. The roadway noise levels will increase from 0.0 dBA CNEL to 8.0 dBA CNEL with the development of the proposed project and the addition of the proposed cumulative projects.

Table 2-10 presents a comparison of the Cumulative Year with and without project noise levels for all roadway segments having a 3 dBA CNEL increase identified in Table 2-9. This was to determine the project related contributions in the Cumulative

TABLE 2-8

## EXISTING VERSUS EXISTING + PROJECT YEAR PROJECT CONTRIBUTIONS

ROAD	SEGMENT	DISTANCE TO 60 dBA CNEL CONTOUR (FEET)			CNEL AT 100 FEET (dBA)		
		NO PROJECT	WITH PROJECT	PROJECT INCREASE	NO PROJECT	WITH PROJECT	PROJECT INCREASE
Interim SR-905	Heritage Rd. To Cactus Rd.	16,281	21,623	5,342	81.7	82.9	1.2
Interim SR-905	Cactus Rd. to Britannia Blvd.	17,998	23,424	5,426	82.1	83.3	1.1
Interim SR-905	Britannia Blvd. to La Media Rd.	14,939	20,535	5,596	81.3	82.7	1.4
Interim SR-905	La Media Rd. to Piper Ranch Rd.	9,393	14,268	4,875	79.3	81.1	1.8
Interim SR-905	Piper Ranch Rd. to SR-125	10,915	16,851	5,936	80.0	81.9	1.9
Otay Mesa Road	SR-125 to Interim SR-905 Connector	3,520	8,466	4,946	75.1	78.9	<b>3.8</b>
Otay Mesa Road	Interim SR-905 Connector to Harvest Rd.	2,054	5,587	3,533	72.7	77.1	<b>4.3</b>
Otay Mesa Road	Harvest Rd. to Sanyo Ave.	1,692	5,138	3,446	71.9	76.7	<b>4.8</b>
Otay Mesa Road	Sanyo Ave. to Enrico Fermi Dr.	1,179	2,907	1,728	70.3	74.2	<b>3.9</b>
Airway Road	Sanyo Ave. to Paseo de La Americas	726	1,157	431	68.2	70.2	2.0
Airway Road	Paseo de La Americas to Michael Faraday Dr.	585	1,017	432	67.3	69.7	2.4
Airway Road	Michael Faraday Dr. to Enrico Fermi Dr.	377	809	432	65.3	68.7	<b>3.3</b>
Siempre Viva Road	SR-905 to Paseo de Las Americas	6,749	10,564	3,815	77.9	79.8	1.9
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	1,616	4,080	2,464	71.7	75.7	<b>4.0</b>
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	1,053	3,517	2,464	69.8	75.0	<b>5.2</b>
La Media Road	Interim SR-905 (Otay Mesa Rd.) to Airway Rd.	2,489	2,599	110	73.5	73.7	0.2
SR-125	North of Otay Mesa Rd.	7,277	8,902	1,625	78.2	79.1	0.9
Existing SR-905	Airway Rd. to Siempre Viva Rd.	7,783	10,539	2,756	78.5	79.8	1.3
Existing SR-905	South of Siempre Viva Rd.	6,792	7,198	406	77.9	78.2	0.3
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	436	984	548	66.0	69.5	<b>3.5</b>
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	346	2,291	1,945	65.0	73.2	<b>8.2</b>
Enrico Fermi Drive	Airway Rd. to Siempre Viva Rd.	1,463	1,808	345	71.2	72.2	0.9

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TABLE 2-9

## EXISTING VERSUS EXISTING +CUMULATIVE + PROJECT WITH SR-905 YEAR PROJECT CONTRIBUTIONS

ROAD	SEGMENT	DISTANCE TO 60 dBA CNEL CONTOUR (FEET)			CNEL AT 100 FEET (dBA)		
		EX	EX + C + P	CUMULATIVE IMPACTS	EX	EX + C + P	CUMULATIVE IMPACTS
Interim SR-905	Heritage Rd. To Cactus Rd.	16,281	7,561	-8,720	81.7	78.4	-3.3
Interim SR-905	Cactus Rd. to Britannia Blvd.	17,998	8,313	-9,685	82.1	78.8	-3.4
Otay Mesa Road	SR-125 to Interim SR-905 Connector	3,520	7,034	3,514	75.1	78.1	<b>3.0</b>
Otay Mesa Road	Harvest Rd. to Sanyo Ave.	1,692	2,648	956	71.9	73.8	1.9
Otay Mesa Road	Sanyo Ave. to Enrico Fermi Dr.	1,179	707	-472	70.3	68.1	-2.2
Airway Road	Sanyo Ave. to Paseo de La Americas	726	3,299	2,573	68.2	74.8	<b>6.6</b>
Airway Road	Paseo de La Americas to Michael Faraday Dr.	585	528	-57	67.3	66.8	-0.4
Airway Road	Michael Faraday Dr. to Enrico Fermi Dr.	377	694	317	65.3	68.0	2.7
Siempre Viva Road	SR-905 to Paseo de Las Americas	6,749	13,577	6,828	77.9	80.9	<b>3.0</b>
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	1,616	3,627	2,011	71.7	75.2	<b>3.5</b>
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	1,053	3,121	2,068	69.8	74.5	<b>4.7</b>
SR-125	North of Otay Mesa Rd.	7,277	3,272	-4,005	78.2	74.7	-3.5
Existing SR-905	South of Siempre Viva Rd.	6,792	19,277	12,485	77.9	82.4	<b>4.5</b>
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	436	2,216	1,780	66.0	73.0	<b>7.1</b>
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	346	2,172	1,826	65.0	73.0	<b>8.0</b>

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TABLE 2-10

## EXISTING + CUMULATIVE VERSUS EXISTING + CUMULATIVE + PROJECT WITH SR-905 YEAR PROJECT CONTRIBUTIONS

ROAD	SEGMENT	DISTANCE TO 60 dBA CNEL CONTOUR (FEET)			CNEL AT 100 FEET (dBA)		
		EX + C	EX + C + P	CUMULATIVE SIGNIFICANT IMPACTS	EX + C	EX + C + P	CUMULATIVE SIGNIFICANT IMPACTS
Old Otay Mesa Road	SR-125 to Harvest Rd.	6,539	7,034	495	77.7	78.1	0.3
Airway Road	Sanyo Ave. to Paseo de La Americas	2,816	3,299	483	74.1	74.8	0.7
Siempre Viva Road	SR-905 to Paseo de Las Americas	7,642	13,577	5,935	78.4	80.9	<b>2.5</b>
Siempre Viva Road	Paseo de Las Americas to Michael Faraday Dr.	1,616	3,627	2,011	71.7	75.2	<b>3.5</b>
Siempre Viva Road	Michael Faraday Dr. to Enrico Fermi Dr.	1,053	3,121	2,068	69.8	74.5	<b>4.7</b>
Existing SR-905	South of Siempre Viva Rd.	17,835	19,277	1,442	82.1	82.4	0.3
Sanyo Avenue	Otay Mesa Rd. to Airway Rd.	1,997	2,216	219	72.6	73.0	0.5
Enrico Fermi Drive	Otay Mesa Rd. to Airway Rd.	1,394	2,172	778	71.0	73.0	<b>1.9</b>

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Year. There are cumulative impacts of more than 1.0 dBA CNEL, as can be seen in Tables 2-9 and 2-10.

The project does create an impact of more than 3.0 dBA CNEL on one segment of Airway Road, Enrico Fermi Drive, Sanyo Avenue, two segments of Siempre Viva Road and four segments of Otay Mesa Road as shown in Table 2-8. There is a cumulative noise increase of more than 3.0 dBA CNEL on segments of State Route 905, Otay Mesa Road, Airway Road, Sanyo Avenue and Enrico Fermi Drive and three segments of Siempre Viva Road as can be seen in Table 2-9. The project has a cumulative considerable noise increase (1 dBA CNEL or more) on the three segments of Siempre Viva Road and one segment of Enrico Fermi Drive as shown in Table 2-10.

However the only roadway segment with existing or proposed noise sensitive land uses is along Otay Mesa Road between Sanyo Avenue and Enrico Fermi Drive. Three homes exist along this segment of Otay Mesa Road. Existing with project noise levels would be approximately 74.2 dBA CNEL at the three residences located on the north side of Otay Mesa Road between Sanyo Drive and Enrico Fermi Drive. The project's contribution to the existing noise environment at these residences is 3.9 dBA CNEL and is considered significant. The future conditions with the SR-905 and project noise level at the three residences are anticipated to be lower because the traffic volumes reflected in the project's traffic study, based on the Market Study and a 13% project buildout, and because traffic patterns from the project and cumulative projects will travel along SR-905 instead of Otay Mesa Road.

Preliminary acoustical calculations were performed using the Fresnel Diffraction Method to evaluate the effectiveness of a noise barrier to mitigate the future with project and SR-905 traffic noise impacts at the side yards of the three residences. The roadway to residence acoustical geometry is similar at each of the residences. The usable side yard area was estimated to be located 100 feet from the centerline of Otay Mesa Road. Otay Mesa Road is essentially at the

same elevation as the three residences. Because this distance is the same as the reference distance given in the tables, the sound level would remain the same, 14.2 dBA over the County threshold of significance. The potential barrier was placed approximately 25 feet from the roadway centerline. The calculations indicate that the required 14.2 dBA insertion loss can be achieved by constructing a minimum 14-foot-high noise wall along the roadway right-of-way. Return walls along the side yards perpendicular to driveways and side yard property lines would also be required. The location of these walls would have to be determined in consultation with the each property owner in order to know property line locations and other limitations on noise wall placement. Noise walls must be solid construction without holes or gaps and have a mass of at least 3.5 pounds per square foot.

Because a 14-foot-high noise wall exceeds the acceptable County noise wall height, the insertion loss that would be generated by a more practical wall height was estimated. A typical 8-foot-high wall, in the same configuration as above, would generate approximately 11 dBA of insertion loss and reduce the sound level to 61.2 dBA.

The southern (roadway-facing) building façades of the residences are approximately 70 feet from the centerline of Old Otay Mesa Road and the rear façades are approximately 110 feet from the centerline. The residences are single-story (15 feet high). At a distance of 70 feet from the centerline, the sound level would increase to approximately 76 dBA. At a distance of 120 feet from the centerline, the sound level would be approximately 74 dBA. Using the Fresnel Diffraction Method, the residential structures provide approximately 17 dBA of insertion loss and the traffic noise level at 10 feet behind the residences would therefore be below 60 dBA.

## 2.5 Conclusions

No noise sensitive land uses are proposed on the project site; therefore no impacts from Alta Road are anticipated. Mitigation measures are not necessary to meet the County of San Diego standards.

The future-with-project offsite traffic noise levels would be significant at the residences along Otay Mesa Road between Sanyo Drive and Enrico Fermi Drive increasing the noise levels almost 4 dBA CNEL. It would require a minimum 14-foot-high sound wall at the residences to reduce traffic noise levels to below the level of significance. Because of the opening required in the wall to allow for access, noise levels may not be reduced enough even with the 14-foot-high along the perimeter of the residential properties. Therefore, mitigation for these impacts is not feasible and project transportation-related impacts to NSLUs would be significant and unavoidable. This cumulatively significant off-site impact at the existing homes is consistent with the findings in the East Otay Mesa Specific Plan Environmental Impact Report (EOMSP EIR), 1994.

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### **3.0 OPERATIONAL ACTIVITIES**

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#### **3.1 Guidelines for the Determination of Significance**

Section 36.404 of the County of San Diego noise ordinance provides performance standards and noise control guidelines for determining and mitigating non-transportation, or stationary, noise source impacts to adjacent properties. The purpose of the noise ordinance is to protect, create and maintain an environment free from noise and vibration that may jeopardize the health or welfare, or degrade the quality of life.

According to the stationary source exterior noise standards, no person shall operate any source of sound at any location within the County or allow the creation of any noise on a property which causes the noise levels to exceed the exterior noise limits at the property boundary within all non-industrial zones. The proposed project site is within the East Otay Mesa Specific Plan Subarea 2 which designates the project site and all adjacent properties as industrial. The approved East Otay Mesa Specific Plan Subarea 2 states that noise levels limits are governed under Section 6310d of the zoning ordinance, which sets an exterior noise limit of 75 dBA Leq for daytime hours and nighttime hours. The southeastern portion of the site is considered biological open space having a 60 dBA, or ambient standard. Please refer to the Project's Biological Report for more detail.

The Country of Mexico is located to the south across a separate industrial parcel and a Border Patrol Corridor. The closest land use is 330 to 490 feet from the project's southern property line. No applicable standard are easily defined for the uses in Mexico, but based upon a recent aerial photograph mostly industrial uses exist in Mexico adjacent to the border with one development that appears to be apartments. For the purposes of this analysis the property to the south, zoned industrial, has a similar industrial use with a standard of 75 dBA Leq. The Otay Business park project must meet the 75 dBA Leq standard at its southern property line. The specifics of the methods or mitigations to meet that standard are not known at this time until a site specific site plan and use has been defined. With a

property line noise level of 75 dBA Leq, fifty feet from the source, the noise levels would be reduced to 58.6 dBA Leq at 330-feet to the closest land use across the Mexican Border. Along the border, directly south of this project, is a heavily traveled trucking corridor and Border Patrol corridor that increases the ambient noise levels above the anticipated 58.6 dBA Leq. Therefore, the project related noise levels at the border of Mexico are below the ambient conditions and no impacts are anticipated. Additionally a 16-foot high border fence exists along the border that will help reduce noise levels in Mexico and no impacts are anticipated.

### 3.2 Potential Noise Impacts

This section examines the potential stationary noise source impacts associated with the development and operation of the proposed Otay Business Park. Specific uses for each lot have not been determined at this point. As part of the project development a sewer lift station is being proposed and the southeastern portion of the site is designated biological open space.

### 3.3 Potential Buildout Noise Conditions

Each lot on the project site is designed for light industrial uses and therefore may utilize noise-producing equipment including rooftop mechanical ventilation units, truck deliveries, truck loading/unloading, trash compactors, forklifts and generators. The cumulative noise level from all equipment will vary at the property line depending on the location and orientation of the equipment, the amount of each type of equipment and the size of each type of equipment. Due to the large number of variables affecting the property line operational noise levels, it is not possible to project an exact noise level or to determine if the project will need mitigation in order to meet the County of San Diego and East Otay Mesa Specific Plan Subarea 2 standards. Once a site-specific plan for each lot is determined, a property line noise analysis must be completed for each property line on the project site to determine compliance with the property line standards and work with the project biologist to determine if any known adjacent habitat area will be affected.

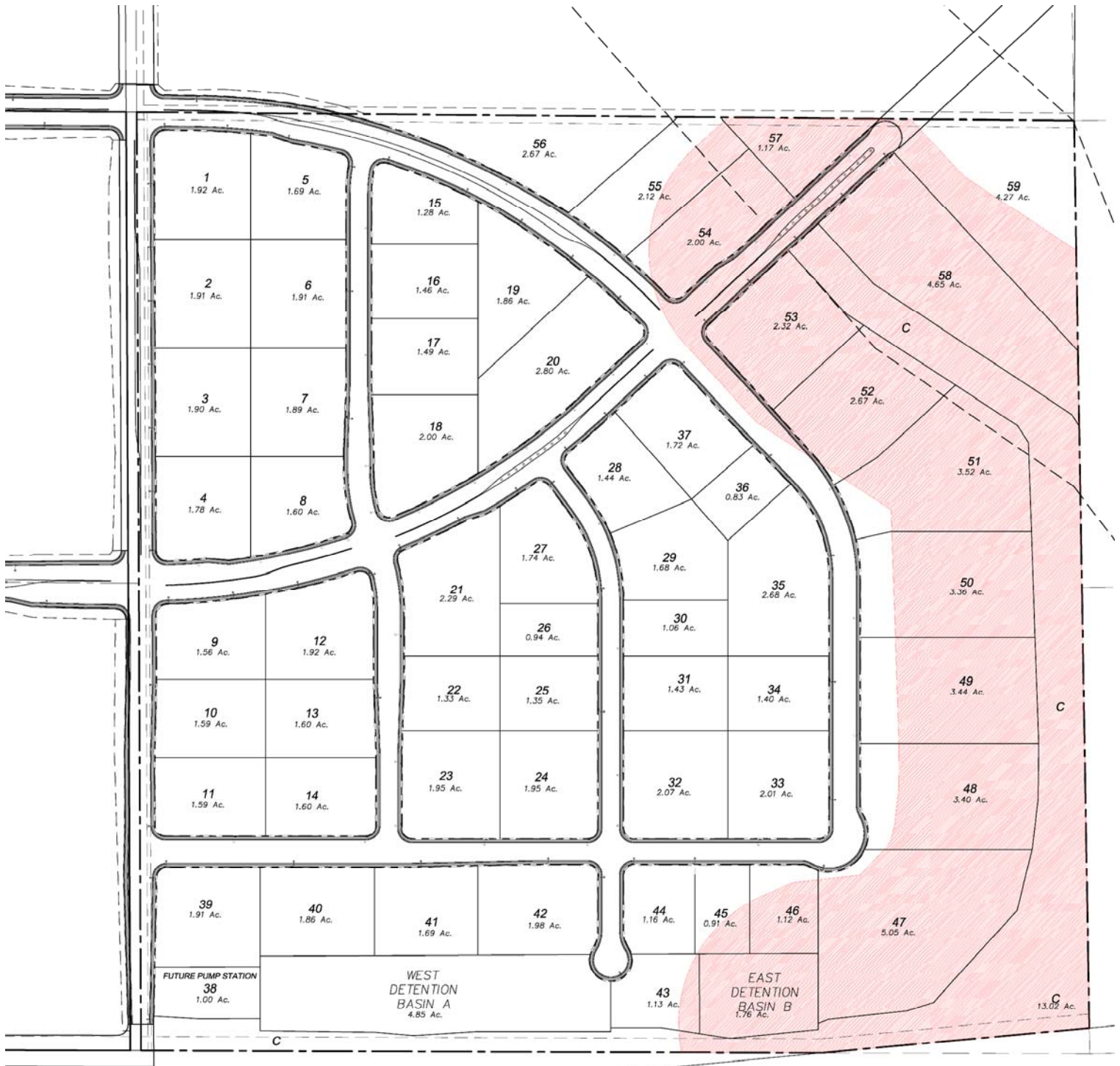
The eastern portion of the Project site would be preserved as biological open space adjacent to Lots 43 and 45-55, and 57-59. In addition, off-site areas adjacent to and east of the Project site's southeastern corner would be preserved as biological open space by the Otay Crossings Commerce Park. Both the on-site and off-site biological open space areas have the potential to support sensitive animal species that may be adversely affected by considerable noise levels (i.e., noise levels in excess of 60 dBA Leq). For purposes of analysis, it was assumed that a impact would occur if Project-related noise levels exceed, or substantially contribute to noise levels in excess of, 60 dBA at on- or off-site biological open space areas. Due to the physical properties of sound, unmitigated noise levels generated by the Project would be reduced from 75 dBA (property line standard) to 60 dBA at a distance of 280 feet. Additionally cumulative noise impacts may also occur at the biological open space when two adjacent Lots are both operating simultaneously. This is based on a property line noise level of 75 dBA at each adjacent Lot which would equal a noise level of 78 dBA (75 dBA plus 75 dBA). The unmitigated noise level would be reduced from 78 dBA to 60 dBA at a distance of 395 feet from Lots 43 and 45-55, and 57-59. Exhibit 3-A shows the Lots and limits of the potential operational noise that may affect the biological open space.

Because the ultimate physical layout and orientation of on-site structures at Lots 43 and 45-55, and 57-59 are not reasonably foreseeable, there is the potential that noise sources could be placed closer than 395 feet to proposed on- and/or off-site biological open space areas. Accordingly, there is the potential that long-term operation of the site would expose biologically sensitive areas on- and off-site to unacceptable levels of noise (i.e., noise levels in excess of 60 dBA Leq), which may result in a significant impact.

The proposed Otay Business Park Development also includes a sewer lift station located at the southwest corner of the project site on 1.0 acre shown as Lot 38. The noise levels associated with the operation of the proposed sewer lift station will be based on empirical data identified in a previous study (Harmony Grove Village –

# POTENTIAL BIOLOGICAL OPERATIONAL NOISE IMPACTS

EXHIBIT 3-A



Pacific Noise Control, dated 7/24/06).

The sewer lift station is surrounded by industrial uses both existing and proposed. The approved East Otay Mesa Specific Plan Subarea 2 states that noise levels limits are governed under Section 6310d of the zoning ordinance, which sets an exterior noise limit for the industrial land uses of 75 dBA Leq for daytime hours and nighttime hours. The lift station will be designed as a submersible station and would include two or three 40 HP pumps encased in a concrete vault. Based on a similar underground lift station, the pumps would generate a noise level of 45 dB at a distance of 15 feet from the access hatch and would not generate noise impacts. The location and lot layout of the sewer lift station are provided in Exhibit 3-B.

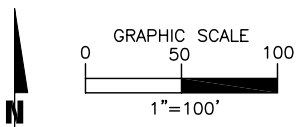
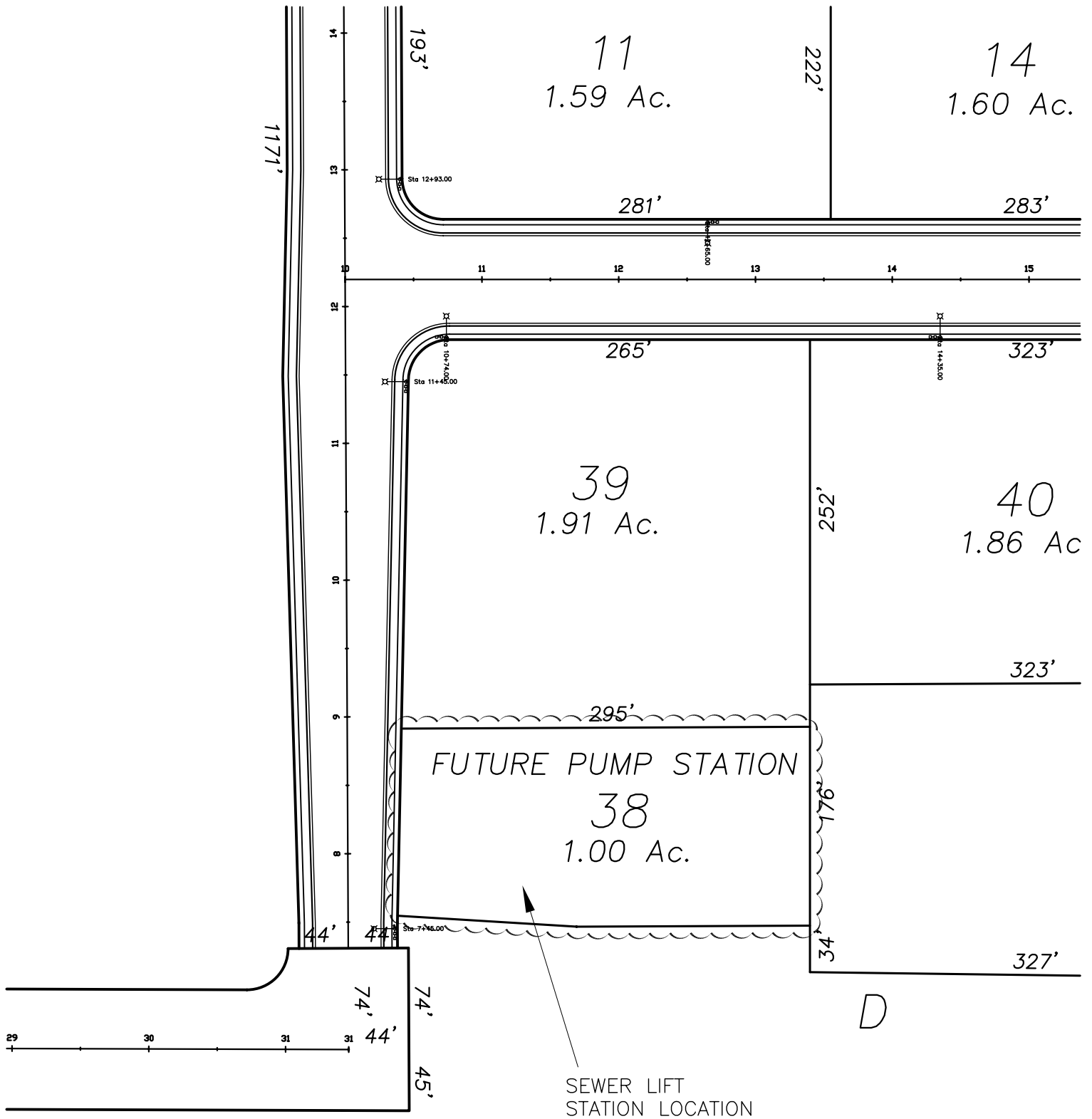
#### 3.4 Mitigated Noise Impacts

Due to the large number of industrial lots, it may be necessary to mitigate some or all of the noise sources on the project site. This mitigation may include parapet walls on the rooftop, individual barriers at each mechanical ventilation unit, barriers at the project's property lines and/or time and size restrictions for the equipment. However, mitigation cannot be determined until a site-specific plan for each lot is designed. As such, a site-specific noise study shall be required prior to the issuance of building permits for each phase or lot of the proposed project. The study will need to determine compliance with the property line standards and work with the project biologist to determine if any known adjacent habitat area will be affected at Lots 47-49.

#### 3.5 Conclusions

The project may be required to incorporate mitigation measures such as parapet walls on the rooftop, individual barriers at each mechanical ventilation unit, barriers at the project's property lines and/or time and size restrictions for the equipment. However, due to the large number of unknown variables affecting the property line

# EXHIBIT 3-B SEWER LIFT STATION LOCATION



operational noise level, it is not possible to project an exact noise level or to determine if the project will need mitigation in order to meet the County of San Diego and East Otay Mesa Specific Plan Subarea 2 standards. Once a site-specific plan for each lot is determined, a property line analysis must be completed for each property line on the project site. Once a site-specific plan for each lot is determined, a property line noise analysis must be completed for each property line on the project site to determine compliance with the property line standards and work with the project biologist to determine if any known adjacent habitat area will be affected.

Prior to the approval of any Site Plan for any development proposal within the Lots 43, 45-55, and 57-59 an acoustical analysis must be performed, by a County-approved acoustical engineer, demonstrating that Project noise would not substantially contribute to future exterior noise levels at the on- and/or off-site biological open space areas in excess of 60 dBA Leq. If ambient noise levels in the biological open space exceed 60 dBA Leq prior to the development of Lots 43, 45-55, and 57-59, the analysis shall demonstrate that the Project-related contributions toward cumulative noise levels in the biological open space would be equal to a 0.0 net dBA Leq increase above ambient conditions that exist at the time the study was prepared.

Results of this analysis indicate that noise levels from the installation of the sewer lift station in the southwest corner of the site, Lot 38, will be 45 dBA Leq at 15-feet from the access hatch and will comply with the 75 dBA standard without mitigation. In fact, the project would meet the County of San Diego's most restrictive property line threshold of 45 dBA Leq without mitigation.

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## **4.0 CONSTRUCTION ACTIVITIES**

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### **4.1 Guidelines for the Determination of Significance**

Construction Noise: Noise generated by construction activities related to the project will exceed the standards listed in San Diego County Code Section 36.410, Construction Equipment.

Section 36.410 states:

Except for emergency work,

- (a) It shall be unlawful for any person to operate construction equipment between the hours of 7 p.m. of any day and 7 a.m. of the following day.
- (b) It shall also be unlawful for any person to operate construction equipment on Sundays, and days appointed by the President, Governor, or the Board of Supervisors for a public fast, Thanksgiving, or holiday, but a person may operate construction equipment on the above-specified days between the hours of 10 a.m. and 5 p.m. at his residence or for the purpose of constructing a residence for himself, provided that the average sound level does not exceed 75 decibels during the period of operation and that the operation of construction equipment is not carried out for profit or livelihood.
- (c) It shall also be unlawful to operate any construction equipment so as to cause at or beyond the property line of any property upon which a legal dwelling unit is located an average sound level greater than 75 decibels between the hours of 7 a.m. and 7 p.m.

For temporary activities, the County considers the 75 decibel (A) average to be based on a period of eight hours.

## 4.2 Potential Noise Impacts

### a. Potential Buildout Noise Conditions

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, loaders and scrapers can reach high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours. The project site will be mass graded in one phase. According to the project applicant, a total of four scrapers, two compactors, two water trucks, two graders, two loaders and two dozers during grading activities will be required to complete the proposed grading operations. The noise levels utilized in this analysis are shown in Table 4-1.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from approximately 60 dBA to noise levels in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 68 dBA measured at 50 feet from the noise source to the receptor would be reduced to 62 dBA at 100 feet from the source to the receptor, and would be further reduced to 56 dBA at 200 feet from the source to the receptor.

### b. Potential Noise Impact Identification

Using a point-source noise prediction model, calculations of the expected construction noise impacts were completed. Key input data for these performance equations include the relative source to receiver horizontal

**TABLE 4-1**

**CONSTRUCTION EQUIPMENT NOISE LEVELS**

EQUIPMENT TYPE	SOURCE LEVEL AT 50 FEET (dBA) <sup>1</sup>
Scraper	75
Compactor	75
Water Truck	70
Motor Grader	70
Loader	70
Dozer	75

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1 Reference Levels Provided by Environmental Protection Agency (EPA), 1971.

U:\UcJobs\\_03600-04000\\_03600\03643\Excel\[Copy of 03643-13 Tables (05-06-10).xls]T4-1

separations, the relative source to receiver vertical separations, the typical noise source spectra and any barrier transmission loss.

The project site will be mass graded in one phase using the list of construction equipment identified in Table 4-1. The equipment is anticipated to be spread out over the entire site; some equipment may be operating at or near the property line while the rest of the equipment may be located as far as 2,000-feet from the same property line. This would result in an acoustical center for the grading operation at approximately 1,000-feet to the nearest property line. As can be seen in Table 4-2, if all the equipment was operating in the same location, which is not physically possible, at a distance as close as 160-feet from the nearest property line the point source noise attenuation from construction activities is 10.1 dBA. This would result in an anticipated worse-case combined noise level of 74.9 dBA at the property line. Given this and the spatial separation of the equipment, the noise levels will comply with the County of San Diego's 75 dBA standard at all project property lines.

Due to scheduling and the processing of other projects adjacent to the Otay Business Park cumulative grading operations may occur. If similar grading operations are simultaneously occurring at the same distance of 160-feet the construction related noise levels would be doubled at a shared property line. Essentially, from a noise standpoint the two separate operations would be considered overlapping and would act as a single noise generator. This would result in a noise level increase of 3 decibels and would exceed the County's threshold of 75 dBA. To reduce the noise levels below the County's 75 dBA threshold the construction operations would need to be moved to a distance of 225-feet from the shared property line. As can be seen in Table 4-3 this increase in distance would reduce the noise levels an additional 3 decibels and the cumulative construction noise would comply with the County's property line standard of 75 dBA.

TABLE 4-2

## PROJECT CONSTRUCTION NOISE LEVELS

EQUIPMENT TYPE	QUANTITY	TIME OF OPERATION (HOURS)	SOURCE LEVEL AT 50 FEET (dBA) <sup>1</sup>	CUMULATIVE LEVEL AT 50 FEET (dBA)
Scraper	4	8	75	81.0
Compactor	2	8	75	78.0
Water Truck	2	8	70	73.0
Motor Grader	2	8	70	73.0
Loader	2	8	70	73.0
Dozer	2	8	75	78.0
CUMULATIVE LEVELS AT 50 FEET (dBA)				85.0
DISTANCE TO PROPERTY LINE				160
NOISE REDUCTION DUE TO DISTANCE				-10.1
PROPERTY LINE NOISE LEVEL				<b>74.9</b>

<sup>1</sup> Reference Levels Provided by Environmental Protection Agency (EPA), 1971.

**TABLE 4-3**

**CUMULATIVE CONSTRUCTION NOISE LEVELS**

EQUIPMENT TYPE	QUANTITY	TIME OF OPERATION (HOURS)	SOURCE LEVEL AT 50 FEET (dBA) <sup>1</sup>	CUMULATIVE LEVEL AT 50 FEET (dBA)
Scraper	8	8	75	84.0
Compactor	4	8	75	81.0
Water Truck	4	8	70	76.0
Motor Grader	4	8	70	76.0
Loader	4	8	70	76.0
Dozer	4	8	75	81.0
CUMULATIVE LEVELS AT 50 FEET (dBA)				88.0
DISTANCE TO PROPERTY LINE				225
NOISE REDUCTION DUE TO DISTANCE				-13.1
PROPERTY LINE NOISE LEVEL				<b>74.9</b>

<sup>1</sup> Reference Levels Provided by Environmental Protection Agency (EPA), 1971.

In 1991, the U.S. Fish and Wildlife Service (USFWS) recommended that hourly noise levels not exceed 60 dBA Leq or ambient conditions, whichever is greater; to protect the Gnatcatcher and other endangered bird species. The County of San Diego has adopted this standard for all sensitive species. Therefore, the 60 dBA Leq or ambient will be used as the noise criteria to assess noise impacts on sensitive wildlife both on and off site. Construction activities should be avoided during the nesting/breeding season. Should it be necessary to conduct clearing, grading, or other construction activities during the bird breeding season, a preconstruction nesting survey of all areas within 300 feet of the proposed activity will be required by a County certified biologist. Please refer to the Project's biological report for more details.

#### 4.3 Mitigated Noise Impacts

Results of the analysis indicate that the project will meet the County of San Diego 75 dBA CNEL standard for grading activities at all project property lines without mitigation. If grading activities are anticipated to occur during the breeding/nesting season as the project is developed and a sensitive habitat area has been identified by the project's biologist, it is recommended that a specific mitigation plan based upon the location of the identified habitat and corresponding construction schedule be identified by a County certified acoustical engineer. This mitigation plan would determine the height and location of a temporary barrier or the reduction of equipment usage, if required. The height of this barrier would be based on the topography in the area, the location of the habitat and also the location of the construction equipment. The biological mitigation plan, if needed, should also include noise monitoring prior to and during the beginning of the nesting/breeding season in coordination with the Project's Biologist to ensure compliance with applicable standards.

#### 4.4 Conclusions

At a distance as close as 160-feet the point source noise attenuation or reduction from construction activities and the nearest property line is 10.1 dBA. This would result in an anticipated worse-case combined noise level of 74.9 dBA at the property line. Given this and the spatial separation of the equipment, the noise levels will comply with the County of San Diego's 75 dBA standard at all project property lines.

Due to scheduling and the processing of other projects adjacent to the Otay Business Park cumulative grading operations may occur. If cumulative grading operations are simultaneously occurring at a shared property line noise levels may exceed the County threshold of 75 dBA. The two separate operations would be considered overlapping and would act as a single noise generator. To reduce the noise levels below the County's 75 dBA threshold the construction operations would need to be moved to a distance of 225-feet from the shared property line. This increase in distance would reduce the noise levels below the County's property line standard of 75 dBA.

Construction activities should be avoided during the nesting/breeding season. If grading activities are anticipated to occur during the breeding/nesting season as the project is developed and a sensitive habitat area has been identified by the project's biologist, it is recommended that a specific mitigation plan based upon the location of the identified habitat and corresponding construction schedule be identified by a County certified acoustical engineer. This mitigation plan would determine the height and location of a temporary barrier or the reduction of equipment usage, if required. The height of this barrier would be based on the topography in the area, the location of the habitat and also the location of the construction equipment. The biological mitigation plan, if needed, should also include noise monitoring prior to and during the beginning of the nesting/breeding season in coordination with the Project's Biologist to ensure compliance with applicable standards.

## 5.0 GROUND-BORNE VIBRATION AND NOISE IMPACTS

### 5.1 Guidelines for the Determination of Significance

Project implementation will expose uses to ground-borne vibration or noise levels equal to or in excess of the levels listed in Tables 3 and 4 of the County of San Diego Guidelines for the Determination of Significance. For simplicity, the tables are shown below.

**Table 3**  
**Guidelines for Determining the Significance of**  
**Groundborne Vibration and Noise Impacts**

Land Use Category	Ground-Borne Vibration Impact Levels (inches/sec rms)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events <sup>1</sup>	Infrequent Events <sup>2</sup>	Frequent Events <sup>1</sup>	Infrequent Events <sup>2</sup>
Category 1: Buildings where low ambient vibration is essential for interior operations. (research & manufacturing facilities with special vibration constraints)	0.0018 <sup>3</sup>	0.0018 <sup>3</sup>	Not applicable <sup>5</sup>	Not applicable <sup>5</sup>
Category 2: Residences and buildings where people normally sleep. (hotels, hospitals, residences, & other sleeping facilities)	0.0040	0.010	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use. (schools, churches, libraries, other institutions, & quiet offices)	0.0056	0.014	40 dBA	48 dBA

Source: U.S Department of Transportation, Federal Transit Administration, "Transit Noise and Vibration Impact Assessment," May 2006.

**Notes to Table 3:**

1. "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
2. "Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
3. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research will require detailed evaluation to define acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
4. Vibration-sensitive equipment is not sensitive to ground-borne noise.
5. There are some buildings, such as concert halls, TV and recording studios, and theaters, that can be very sensitive to vibration and noise but do not fit into any of the three categories. Table 4 gives criteria for acceptable levels of ground-borne vibration and noise for these various types of special uses.
6. For Categories 2 and 3 with occupied facilities, isolated events such as blasting are significant when the peak particle velocity (PPV) exceeds one inch per second. Continuous or frequent intermittent vibration sources such as impact pile drivers are significant when their PPV exceeds 0.1 inch per second. . More specific criteria for structures and potential annoyance were developed by Caltrans (2004) and will be used to evaluate these continuous or transient sources in San Diego County.

**Table 4**  
**Guidelines for Determining Significance of**  
**Ground-Borne Vibration and Noise Impacts for Special Buildings**

Type of Building or Room	Ground-Borne Vibration Impact Levels (inches/sec rms)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events <sup>1</sup>	Infrequent Events <sup>2</sup>	Frequent Events <sup>1</sup>	Infrequent Events <sup>2</sup>
Concert Halls, TV Studios, and Recording Studios	0.0018	0.0018	25dBA	25dBA
Auditoriums	0.0040	0.010	30 dBA	38 dBA
Theaters	0.0040	0.010	35 dBA	43 dBA

Source: U.S Department of Transportation, Federal Transit Administration, "Transit Noise and Vibration Impact Assessment," May 2006.

**Notes to Table 4:**

1. "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
2. "Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
3. If the building will rarely be occupied when the trains are operating, there is no need to consider impact.
4. For historic buildings and ruins, the allowable upper limit for continuous vibration to structures is identified to be 0.056 inches/second rms. Transient conditions (single-event) would be limited to approximately twice the continuous acceptable value.

## 5.2 Potential & Mitigated Noise Impacts

There are no existing or proposed activities on or near the proposed project site at this time which would cause any significant vibration levels to the buildings on the project site. None of the identified land uses fall into the three categories listed in the above Table 3. No impacts are anticipated.

## 5.3 Conclusions

No vibration impacts are anticipated to the proposed project site, therefore no mitigation is required.

## **6.0 SUMMARY OF PROJECT IMPACTS, MITIGATION & CONCLUSIONS**

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This noise study has been completed to determine the noise impacts associated with the development of the proposed Otay Business Park. The results of this analysis indicate that future vehicle noise from Alta Road is the principal source of community noise that will impact the site. No noise sensitive land uses are proposed on the project site; therefore no impacts from Alta Road are anticipated.

The future-with-project offsite traffic noise levels would be significant at the residences along Otay Mesa Road between Sanyo Drive and Enrico Fermi Drive increasing the noise levels almost 4 dBA CNEL. It would require a minimum 14-foot-high sound wall at the residences to reduce traffic noise levels to below the level of significance. Because of the opening required in the wall to allow for access, noise levels may not be reduced enough even with the 14-foot-high along the perimeter of the residential properties. Therefore, mitigation for these impacts is not feasible and project transportation-related impacts to NSLUs would be significant and unavoidable. This cumulatively significant off-site impact at the existing homes is consistent with the findings in the East Otay Mesa Specific Plan Environmental Impact Report (EOMSP EIR), 1994.

It would require a 14-foot-high minimum sound wall at the residences to reduce traffic noise levels to below the level of significance. Therefore, mitigation for these impacts is not feasible and project transportation-related impacts to NSLUs would be significant and unavoidable. This cumulatively significant off-site impact at the existing homes is consistent with the findings in the East Otay Mesa Specific Plan Environmental Impact Report (EOMSP EIR), 1994.

The project may be required to incorporate mitigation measures such as parapet walls on the rooftop, individual barriers at each mechanical ventilation unit, barriers at the project's property lines and/or time and size restrictions for the equipment. However, due to the large number of unknown variables affecting the property line operational noise level, it is not possible to project an exact noise level or to determine if the project will need mitigation in order to meet the County of San Diego and East Otay Mesa Specific Plan Subarea 2

standards. Once a site-specific plan for each lot is determined, a property line analysis must be completed for each property line on the project site.

The nearest land use in the Country of Mexico is located to the south across a separate industrial parcel and a Border Patrol Corridor 330 to 490 feet from the project's southern property line. With a property line noise level of 75 dBA Leq, fifty feet from the source, the noise levels would be reduced to 58.6 dBA Leq at the closest land use across the Mexican Border at 330-feet. Along the border, directly south of this project, is a heavily traveled trucking corridor and Border Patrol corridor that increases the ambient noise levels above the anticipated 58.6 dBA Leq. Therefore, the project related noise levels at the border of Mexico are below the ambient conditions and no impacts are anticipated. Additionally a 16-foot high border fence exists along the border that will help reduce noise levels in Mexico and no impacts are anticipated.

Prior to the approval of any Site Plan for any development proposal within the Lots 43 and 45-55, and 57-59 an acoustical analysis must be performed, by a County-approved acoustical engineer, demonstrating that Project noise would not substantially contribute to future exterior noise levels at the on- and/or off-site biological open space areas in excess of 60 dBA Leq. If ambient noise levels in the biological open space exceed 60 dBA Leq prior to the development of Lots 43 and 45-55, and 57-59, the analysis shall demonstrate that the Project-related contributions toward cumulative noise levels in the biological open space would be equal to a 0.0 net dBA Leq increase above ambient conditions that exist at the time the study was prepared.

Noise levels from the installation of the sewer lift station in the southwest corner of the site located in Lot 38 will be 45 dBA Leq at 15-feet from the access hatch and will comply with the 75 dBA standard without mitigation. In fact, the project would meet the County of San Diego's most restrictive property line threshold of 45 dBA Leq without mitigation.

Results of the analysis also indicate that the project will meet the County of San Diego 75 dBA CNEL standard for grading activities at all project property lines without mitigation. Due to scheduling and the processing of other projects adjacent to the Otay

Business Park cumulative grading operations may occur. If cumulative grading operations are simultaneously occurring at a shared property line noise levels may exceed the County threshold of 75 dBA. The two separate operations would be considered overlapping and would act as a single noise generator. To reduce the noise levels below the County's 75 dBA threshold the construction operations would need to be moved to a distance of 225-feet from the shared property line. This increase in distance would reduce the noise levels below the County's property line standard of 75 dBA.

Construction activities should be avoided during the nesting/breeding season. If grading activities are anticipated to occur during the breeding/nesting season as the project is developed and a sensitive habitat area has been identified by the project's biologist, it is recommended that a specific mitigation plan based upon the location of the identified habitat and corresponding construction schedule be identified by a County certified acoustical engineer. This mitigation plan would determine the height and location of a temporary barrier or the reduction of equipment usage, if required. The height of this barrier would be based on the topography in the area, the location of the habitat and also the location of the construction equipment.

The biological mitigation plan, if needed, should also include noise monitoring prior to and during the beginning of the nesting/breeding season in coordination with the Project's Biologist to ensure compliance with applicable standards. The U.S. Fish and Wildlife Service (USFWS) recommended that hourly noise levels not exceed 60 dBA Leq or ambient conditions, whichever is greater; to protect the Gnatcatcher and other endangered bird species. The County of San Diego has adopted this standard for all sensitive species. Therefore, the 60 dBA Leq or ambient will be used as the noise criteria to assess noise impacts on sensitive wildlife both on and off site.

There are no existing or proposed activities on or near the proposed project site which would cause any significant vibration levels to the buildings on the project site and no impacts are anticipated.

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## **7.0 LIST OF MITIGATION MEASURES AND DESIGN CONSIDERATIONS**

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- On-Site Noise Analysis

No noise sensitive land uses are proposed on the project site; therefore no impacts are anticipated.

- Off-Site Noise Analysis

The off-site noise analysis indicates that the proposed project creates an increase of more than 3.0 dBA CNEL along Otay Mesa Road between Sanyo Avenue and Enrico Fermi Drive. Three residential dwelling units currently exist along this roadway segment. Therefore, the proposed project's contributions to off-site roadway noise increases will cause significant impacts to these existing noise sensitive land uses. It would require a minimum 14-foot-high sound wall at the residences to reduce traffic noise levels to below the level of significance. Because of the opening required in the wall to allow for access, noise levels may not be reduced enough even with the 14-foot-high along the perimeter of the residential properties. In addition, a 14-foot high noise wall would exceed the County's maximum height for such barriers, as specified in Section 6708 of the County's Zoning Ordinance. Therefore, mitigation for these impacts is not feasible and project transportation-related impacts to NSLUs would be significant and unavoidable. This cumulatively significant off-site impact at the existing homes is consistent with the findings in the East Otay Mesa Specific Plan Environmental Impact Report (EOMSP EIR), 1994.

- Operational Analysis

The project may be required to incorporate mitigation measures such as parapet walls on the rooftop, individual barriers at each mechanical ventilation unit, barriers at the project's property lines and/or time and size restrictions for the equipment.

Once a site-specific plan for each lot is determined, a property line analysis must be completed for each property line on the project site.

The nearest land use in the Country of Mexico is located to the south across a separate industrial parcel and a Border Patrol Corridor 330 to 490 feet from the project's southern property line. With a property line noise level of 75 dBA Leq, fifty feet from the source, the noise levels would be reduced to 58.6 dBA Leq at the closest land use across the Mexican Border at 330-feet. Along the border, directly south of this project, is a heavily traveled trucking corridor and Border Patrol corridor that increases the ambient noise levels above the anticipated 58.6 dBA Leq. Therefore, the project related noise levels at the border of Mexico are below the ambient conditions and no impacts are anticipated. Additionally a 16-foot high border fence exists along the border that will help reduce noise levels in Mexico and no impacts are anticipated.

Prior to the approval of any Site Plan for any development proposal within the Lots 43 and 45-55, and 57-59 an acoustical analysis must be performed, by a County-approved acoustical engineer, demonstrating that Project noise would not substantially contribute to future exterior noise levels at the on- and/or off-site biological open space areas in excess of 60 dBA Leq. If ambient noise levels in the biological open space exceed 60 dBA Leq prior to the development of Lots 43 and 45-55, and 57-59, the analysis shall demonstrate that the Project-related contributions toward cumulative noise levels in the biological open space would be equal to a 0.0 net dBA Leq increase above ambient conditions that exist at the time the study was prepared.

Noise levels from the installation of the sewer lift station in the southwest corner of the site located in Lot 38 will be 45 dBA Leq at 15-feet from the access hatch and will comply with the 75 dBA standard without mitigation. In fact, the project would meet the County of San Diego's most restrictive property line threshold of 45 dBA Leq without mitigation.

- Construction Noise Analysis

Results of the analysis indicate that the project will meet the County of San Diego 75 dBA CNEL standard for grading activities at all project property lines without mitigation at a distance as 160-feet. If cumulative grading operations are simultaneously occurring at a shared property line noise levels may exceed the County threshold of 75 dBA. The two separate operations would be considered overlapping and would act as a single noise generator. To reduce the noise levels below the County's 75 dBA threshold the construction operations would need to be moved to a distance of 225-feet from the shared property line. This increase in distance would reduce the noise levels below the County's property line standard of 75 dBA.

If grading activities are anticipated to occur during the breeding/nesting season as the project is developed and a sensitive habitat area has been identified by the project's biologist, it is recommended that a specific mitigation plan based upon the location of the identified habitat and corresponding construction schedule be identified by a County certified acoustical engineer. This mitigation plan would determine the height and location of a temporary barrier or the reduction of equipment usage, if required. The height of this barrier would be based on the topography in the area, the location of the habitat and also the location of the construction equipment. The biological mitigation plan, if needed, should also include noise monitoring prior to and during the beginning of the nesting/breeding season in coordination with the Project's Biologist to ensure compliance with applicable standards.

- Vibration Analysis

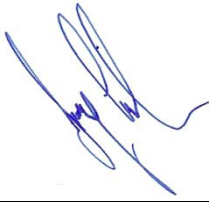
There are no existing or proposed activities on or near the proposed project site which would cause any significant vibration levels to the buildings on the project site and no impacts are anticipated.

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## **8.0 CERTIFICATIONS**

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The contents of this report represent an accurate depiction of the future acoustical environment and impacts within and surrounding the Otay Business Park. The report was prepared by the following individuals including Jeremy Loudon; a County approved CEQA Consultant for Acoustics.



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Jeremy Loudon  
Associate Principal

Date 7/13/10

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**APPENDIX A**

**COUNTY OF SAN DIEGO NOISE STANDARDS**

## **Policy 4b**

Because exterior community noise equivalent levels (CNEL) above 60 decibels and/or interior CNEL above 45 decibels may have an adverse effect on public health and welfare, it is the policy of the County of San Diego that:

1. Whenever it appears that new development may result in any (existing or future) noise sensitive land use being subject to noise levels of CNEL equal to 60 decibels (A) or greater, an acoustical analysis shall be required.
2. If the acoustical analysis shows that noise levels at any noise sensitive land use will exceed CNEL equal to 60 decibels, modifications shall be made to the development which reduce the exterior noise level to less than CNEL of 60 decibels (A) and the interior noise level to less than CNEL of 45 decibels (A).
3. If modifications are not made to the development in accordance with paragraph 2 above, the development shall not be approved unless a finding is made that there are specifically identified overriding social or economic considerations which warrant approval of the development without such modification; provided, however, if the acoustical study shows that sound levels for any noise sensitive land use will exceed a CNEL equal to 75 decibels (A) even with such modifications, the development shall not be approved irrespective of such social or economic considerations.

## **Definitions, Notes & Exceptions**

"Decibels (A)" refers to A-weighted sound levels as noted on page VIII-2 of this Element.

"Development" means any physical development including but not limited to residences, commercial, or industrial facilities, roads, civic buildings, hospitals, schools, airports, or similar facilities.

"Exterior noise":

- (a) For single family detached dwelling projects, "exterior noise" means noise measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum area:
  - (i) Net lot area up to 4,000 sq. ft.: 400 square feet
  - (ii) Net lot area 4,000 sq. ft. to 10 ac.: 10% of net lot area
  - (iii) Net lot area over 10 ac.: 1 ac.

- (b) For all other projects, "exterior noise" means noise measured at all exterior areas which are provided for group or private usable open space purposes.
- (c) For County road construction projects, the exterior noise level due to vehicular traffic impacting a noise sensitive area should not exceed the following values:
  - (i) Federally funded projects: The Noise standard contained in applicable Federal Highway Administration Standards.
  - (ii) Other projects: 60 decibels (A), except if the existing or projected noise level without the project is 58 decibels (A) or greater, a 3 decibel (A) increase is allowed, up to the maximum permitted by Federal Highway Administration Standards.

"Group or Private Usable Open Space" shall mean: Usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways (Group Usable Open Space); and usable open space intended for use of occupants of one dwelling unit, normally including yards, decks and balconies (Private Usable Open Space).

"Interior noise": The following exception shall apply: For rooms which are usually occupied only a part of the day (schools, libraries, or similar), the interior one-hour average sound level, due to noise outside, should not exceed 50 decibels (A).

"Noise sensitive land use" means any residence, hospital, school, hotel, resort, library or any other facility where quiet is an important attribute of the environment.

**Action Program 4b1** Recommend programs to soundproof buildings or redevelop areas where it is impossible to reduce existing source noise to acceptable levels.

**Action Program 4b2** Study the feasibility of extending the application of Section 1092, California Administrative Code dealing with noise insulation standards to single-family dwellings, and incorporating higher standards for reduction of exterior noise intrusion into structures.

**Action Program 4b3** Require present and projected noise level data to be included in Environmental Impact Reports. Designs to mitigate adverse noise impacts shall also be used.

(2) any sound or noise exceeding criteria standards, or levels as set forth in this chapter.

(t) Water Craft shall mean any boat, ship, barge, craft or floating thing designed for navigation in the water which is propelled by machinery, whether or not such machinery is the principal source or propulsion, but shall not include a vessel possessing a valid marine document issued by the United States Bureau of Customs or any federal agency successor thereto.

(u) Supplementary Definitions of Technical Terms - definitions of technical terms not defined herein shall be obtained from the American National Standard, "Acoustical Terminology" S1. 1-1961 (R-1971) or the latest revision thereof.

(Amended by Ord. No. 7428 (N.S.), effective 2-4-88; amended by Ord. No. 8477 (N.S.), adopted 11-8-94, operative 1-1-95; amended by Ord. No. 8975 (N.S.), adopted 12-8-98, operative 1-2-99)

**Cross reference(s)**--Definitions, § [12.101](#) et seq.

#### **SEC. 36.403. SOUND LEVEL MEASUREMENT.**

(a) Any sound or noise level measurement made pursuant to the provisions of this ordinance shall be measured with a sound level meter using the A-weighting and "slow" response pursuant to applicable manufacturer's instructions.

(b) The sound level meter shall be appropriately calibrated and adjusted as necessary by means of an acoustical calibrator of the coupler-type to assure meter accuracy within the tolerances set forth in American National Standards ANSI-S1. 4-1971.

(c) For outside measurements, the microphone shall be not less than four (4) feet above the ground, at least four (4) feet distant from walls or other large reflecting surfaces and shall be protected from the effects of wind noises by the use of appropriate wind screens and the location selected shall be at any point on the affected property. In cases when the microphone must be located within ten (10) feet of walls or similar large reflecting surfaces, the actual measured distances and orientation of sources, microphone and reflecting surfaces shall be noted and recorded. In no case shall a noise measurement be taken within five (5) feet of the noise source.

(d) For inside measurements, the microphone shall be at least three (3) feet distant from any wall, ceiling or partition, and the average measurement of at least three (3) microphone positions throughout the room shall be determined.

#### **SEC. 36.404. SOUND LEVEL LIMITS.**

Unless a variance has been applied for and granted, it shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property on which the sound is produced, exceeds the applicable limits set forth below, except that:

(1) Construction noise level limits shall be governed by Section 36.410 of this chapter; and

(2) Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a Major Use Permit which authorizes the noise-generating use or activity, and the decision making body approving the Major Use Permit determined that those mitigation measures reduce potential noise impacts to a level below significance, then implementation and compliance with such noise mitigation measures shall be deemed to constitute compliance with this section.

Zone		APPLICABLE LIMIT ONE-HOUR AVERAGE SOUND LEVEL (DECIBELS)
R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-88, S-90, S-92, R-V, and R-U Use Regulations with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
R-RO, R-C, R-M, C-30, S-86, R-V AND R-U Use Regulations with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
S-94 and all other commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
M-50, M-52, M-54	Anytime	70
S-82, M-58, and all other industrial zones.	Anytime	75

If the measured ambient level exceeds the applicable limit noted above, the allowable one hour average sound level shall be the ambient noise level. The ambient noise level shall be measured when the alleged noise violation source is not operating.

The sound level limit at a location on a boundary between two (2) zoning districts is the arithmetic mean of the respective limits for the two districts; provided however, that the one-hour average sound level limit applicable to extractive industries, including but not limited to borrow pits and mines, shall be

75 decibels at the property line regardless of the zone where the extractive industry is actually located.

Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this section, measured at or beyond six (6) feet from the boundary of the easement upon which the equipment is located.

(Amended by Ord. No. 7094 (N.S.), effective 3-25-86; amended by Ord. No. 9478 (N.S.), effective 7-19-02)

#### **SEC. 36.405. MOTOR VEHICLES.**

(a) Repairs of Motor Vehicles. It shall be unlawful for any person within the County to repair, rebuild, or test any motor vehicle in such a manner as to cause disturbing, excessive or offensive noises as defined in Section 36.402(s) of this chapter.

(b) On-Highway. Violations for exceeding applicable noise level limits as to persons operating motor vehicles on a public street or highway in the County shall be prosecuted under applicable California Vehicle Code provisions and under Federal Regulation adopted pursuant to 42 U.S.C. 4905(a)(1)(A), (B), and (C)(ii), (iii) for which enforcement responsibility is delegated to local governmental agencies.

(c) Off-Highway. Except as otherwise provided for in this ordinance, it shall be unlawful to operate any motor vehicle of any type on any site other than on a public street or highway as defined in the California Vehicle Code in a manner so as to cause noise in excess of those noise levels permitted for On-Highway motor vehicles as specified in the table "35 miles per hour or less speed limits" contained in Section 23130 of the California Vehicle Code.

(d) Emergency Vehicles. Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations.

(e) Urban Transit Buses. Buses as defined in the California Vehicle Code shall at all times comply with the requirements of this section.

#### **SEC. 36.406. POWERED MODEL VEHICLES.**

It shall be unlawful for any person to operate any powered model vehicle except between the hours of 7 a.m. and 9 p.m. and then only in such a manner so as not to emit noise in excess of those levels set forth in Section 36.404; however, if powered model vehicles are operated in public parks at a point more than 100 feet from the property line, the noise level shall be determined at a distance of 100 feet from the noise source instead of at the property line, and

noises from powered model vehicles measured at that distance in excess of the noise limits specified in Section 36.404 are prohibited.

#### **SEC. 36.407. REFUSE VEHICLES & PARKING LOT SWEEPERS.**

No person shall operate, or permit to be operated, a refuse compacting, processing, or collection vehicle or parking lot sweeper between the hours of 10 p.m. to 6 a.m. in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this chapter.

(Amended by Ord. No. 7428 (N.S.), effective 2-4-88)

#### **SEC. 36.408. WATERCRAFT.**

Violations for excessive noise of watercraft operating in waters under the jurisdiction of the County of San Diego shall be prosecuted under applicable provisions of the California Harbors and Navigation Code.

#### **SEC. 36.409. AIRPORTS.**

All noise emanating from airport activities other than that produced by aircraft shall be subject to all of the regulations contained in this ordinance.

#### **SEC. 36.410. CONSTRUCTION EQUIPMENT.**

Except for emergency work, it shall be unlawful for any person, including the County of San Diego, to operate construction equipment at any construction site, except as outlined in subsections (a) and (b) below:

(a) It shall be unlawful for any person, including the County of San Diego, to operate construction equipment at any construction site on Sundays, and days appointed by the President, Governor, or the Board of Supervisors for a public fast, Thanksgiving, or holiday. Notwithstanding the above, a person may operate construction equipment on the above-specified days between the hours of 10 a.m. and 5 p.m. in compliance with the requirements of subdivision (b) of this Section at his residence or for the purpose of constructing a residence for himself, provided such operation of construction equipment is not carried on for profit or livelihood. In addition, it shall be unlawful for any person to operate construction equipment at any construction site on Mondays through Saturdays except between the hours of 7 a.m. and 7 p.m.

(b) No such equipment, or combination of equipment regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of seventy-five (75) decibels for more than 8 hours during any twenty-four (24) hour period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes.

In the event that lower noise limit standards are established for construction equipment pursuant to State or Federal law, said lower limits shall be used as a basis for revising and amending the noise level limits specified in subsection (b) above.

#### **SEC. 36.411. CONTAINERS AND CONSTRUCTION MATERIAL.**

It shall be unlawful for any person to handle or transport or cause to be handled or transported in any public place, any container or any construction material in such a way as to create a disturbing, excessive, or offensive noise as defined under Section 36.402(s) of this ordinance.

#### **SEC. 36.412. SIGNAL DEVICE FOR FOOD TRUCKS.**

No person shall operate or cause to have operated or used any sound signal device other than sound-amplification equipment attached to a motor vehicle wagon or manually propelled cart from which food or any other items are sold which emits a sound signal more frequently than once every ten minutes in any one street block and with a duration of more than ten seconds for any single emission. The sound level of this sound signal shall not exceed ninety (90) decibels at fifty (50) feet.

#### **SEC. 36.413. MULTIPLE FAMILY DWELLING UNITS.**

Notwithstanding any other provisions of this ordinance it shall be unlawful for any person to create, maintain or cause to be maintained any sound within the interior of any multiple family dwelling unit which causes the noises level to exceed those limits set forth below in any other dwelling unit:

Type of Land Use			Allowable Interior Noise Level (dBA)	
			No Time	1 min in 1 hour    5 min in 1 hour
Multifamily	10 pm- 7 am	> 45	40	35
Residential	7 am-10 pm	> 55	50	35

( > greater than)

( less than or equal to)

The monitoring procedures outlined under Section 36.403 shall be followed in enforcing this section.

#### **SEC. 36.414. GENERAL NOISE REGULATIONS.**

## 3.0 Policies and Regulatory Provisions

This chapter sets forth the policies, regulatory procedures and standards for implementing the East Otay Mesa Specific Plan. The policies and regulations are premised on several objectives:

- Achieve a high quality industrial and business district through good site planning and building design;
- Protect sensitive environmental resources;
- Accommodate land uses and building types appropriate to an international industrial district;
- Coordinate development with a comprehensive planned network of regional and local roads; and
- Provide public facilities and services prior to or concurrent with need.

These policies, regulatory procedures and standards shall apply to SubArea 1 of the East Otay Mesa Specific Plan. The use and employment of land, buildings or structures, and the construction, reconstruction, alteration, expansion, or relocation of any building, structure or use upon the land, shall conform to these regulations. No land, building, structure or premises shall be used for any purpose or in any manner other than as permitted in the district in which such land, building, structure, or premise is located, except as provided by the Nonconforming Use provisions of the County's Zoning Ordinance.

*These policies and regulatory procedures and standards shall apply to SubArea 1 of the East Otay Mesa Specific Plan.*

### 3.1 Land Use Regulations

Land use districts in the East Otay Mesa Specific Plan SubArea 1 Area, as shown in Figure 2.1-1, include Technology Business Park, Activity Nodes, Commercial Center (overlay), Light Industrial, Heavy Industrial, and Conservation/Limited Use. It should also be noted that all uses shall comply with applicable portions of Section 6300 et seq. of the County Zoning Ordinance: Performance Standards. Regarding noise measurements, uses in the Activity Node and Commercial Center shall comply with Section 6310.b; uses in the Technology Business Park shall comply with Section 6310.c; uses in the Light Industrial areas shall comply with Section 6310.d; uses in the

Heavy Industrial areas shall comply with Section 6310.e; and uses in the Conservation/Limited Use areas shall comply with Section 6310.b.

The *Technology Business Park District* is intended to accommodate research and development as well as manufacturing of goods and materials associated with emerging industries in San Diego County.

*Activity Nodes* are intended to create a focal point for daily operations and employee needs within East Otay Mesa. Development standards requiring pedestrian oriented designs will help create a sense of place, unique to East Otay Mesa and the proposed Technology Business Park development.

The *Commercial Center overlay* is intended to accommodate an appropriate range of retail goods and services for the employee population and bi-national traffic.

The *Light Industrial Use District* is intended to accommodate general industrial plants primarily engaged in manufacturing.

The *Heavy Industrial Use District* is intended to accommodate all of the uses allowed in the Technology Business Park and Light Industrial Districts plus recycling and salvage uses.

The *Conservation/Limited Use* designation is applied to areas of the Specific Plan containing steeper slopes and possible significant biological resources.

Parcels with a "G" Designator shall comply with the County Zoning Ordinance Sensitive Resources Area Regulations Sections 5300 – 5307. In addition, the Specific Plan requires the preparation of a Resource Conservation Plan for all parcels with the "G" Designator.

Table 3.1-1 identifies permitted and conditionally permitted land uses by district. Similar to the County Zoning Ordinance, the Specific Plan specifies permitted uses (P), uses subject to a Minor Use Permit (m), uses subject to a Major Use Permit (M). Where the box is blank, use is not permitted. Also included are interim uses (I) that are allowed only by a Major Use Permit to be issued or renewed for up to five years, only with the finding that "a reasonable projection of market demand indicates that it is unlikely that

any allowed permanent use (approved or in house for processing) will be sited within five years that would be negatively impacted by the Interim Use.

In Table 3.1-1, the number in parentheses following each use refers to the use classification described in the County Zoning Ordinance, Sections 1200 through 1899. These sections of The Zoning Ordinance describe the land uses in more detail. The following uses are specifically prohibited in the East Otay Mesa Specific Plan SubArea 1:

- Manufacturing or storage of explosives;
- Permanent storage of toxic waste;
- Cemeteries;
- Animal Auctioning;
- Stockyards;
- Animal rendering plants; and
- Mining and processing.

All proposed development in East Otay Mesa shall require approval of a Site Plan, described in Section 3.3.1 of this Specific Plan, unless a Major Use Permit or other discretionary permit has already addressed the criteria set forth in this Specific Plan or was approved prior to the adoption of this Specific Plan Amendment.

## 6308 NOISE LEVEL MEASUREMENT.

The following provisions shall determine means for measuring noise levels. Where these provisions conflict with other provisions of the San Diego County Code, the following shall remain applicable for purposes of the Zoning Ordinance.

- a. Setting of Meter. Any sound or noise level measurement made pursuant to the provisions of this ordinance shall be measured with a sound level meter using the A-weighting and "slow" response pursuant to applicable manufacturer's instructions, except that for sounds of a duration of 2 seconds or less the "fast" response shall be used and the average level during the occurrence of the sound reported.
- b. Calibration of Meter. The sound level meter shall be appropriately calibrated and adjusted as necessary by means of acoustical calibrator of the coupler-type to assure meter accuracy within the tolerances set forth in American National Standards ANSI-SI.4-1971.
- c. Location of Microphone. All measurements shall be taken at any lot line of the lot containing the use, except as otherwise provided by this subsection. For outside measurements, the measuring microphone shall not be less than 4 feet above the ground, at least 4 feet distance from walls or other large reflecting surfaces and shall be protected from the effects of wind noises by the use of appropriate wind screens. In cases when the microphone must be located within 10 feet of walls or similar large reflecting surfaces, the actual measured distances and orientation of sources, microphone and reflecting of surfaces shall be noted and recorded. In no case shall a noise measurement be taken within 5 feet of the noise source.
- d. Measured Sound Levels. The measurement of sound level limits shall be the average sound level for a period of one hour.


 6310 NOISE LIMITS.

The following noise level limits shall be applicable, provided that no intermittent sound may exceed the limit by 33 percent.

- a. Residential Zone. The noise level limit for industrial or commercial uses located in a residential zone shall be 40 decibels.
- b. Commercial Zone. The noise level limit for uses located in a commercial zone shall be 60 decibels.

c. M50 & M52 Use Regulations. The noise level limit for uses located in a zone subject to the M50 and M52 Use Regulations shall be 70 decibels.

d. M54 and M58 Use Regulations. The noise level limit for uses located in a zone subject to the M54 Use Regulations, or in the M58 Use Regulations within 400 feet of any boundary of a residential zone, shall be 75 decibels.

e. M58 Use Regulations. The noise level limit for uses located in a zone subject to the M58 Use Regulations other than within 400 feet of any boundary of a residential zone, shall be 80 decibels.

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

#### 6312 NOISE CORRECTION FACTORS.

The following correction factors, when applicable, shall be applied to the maximum noise level limits indicated in Section 6310:

Time of Type of Noise	Correction in Maximum Permitted Decibels
For uses located in a residential zone: Emission only between 7 a.m. and the next ensuing 7 p.m.	Plus 10
or	
Emission only between 7 p.m. and the next ensuing 10 p.m.	Plus 5
For uses located in a commercial zone: Emission only between 7 p.m. and next ensuing 7 a.m.	Minus 5
Noise of unusual impulsive character, such as hammering	Minus 5
Noise rising or falling in pitch or volume, such as humming, screeching or pulsating	Minus 5
Noise of unusually high sound frequency (more than 5000 cycles per second)	Minus 25

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)

## **APPENDIX B**

### **SPECTRAL NOISE READING PRINTOUTS**

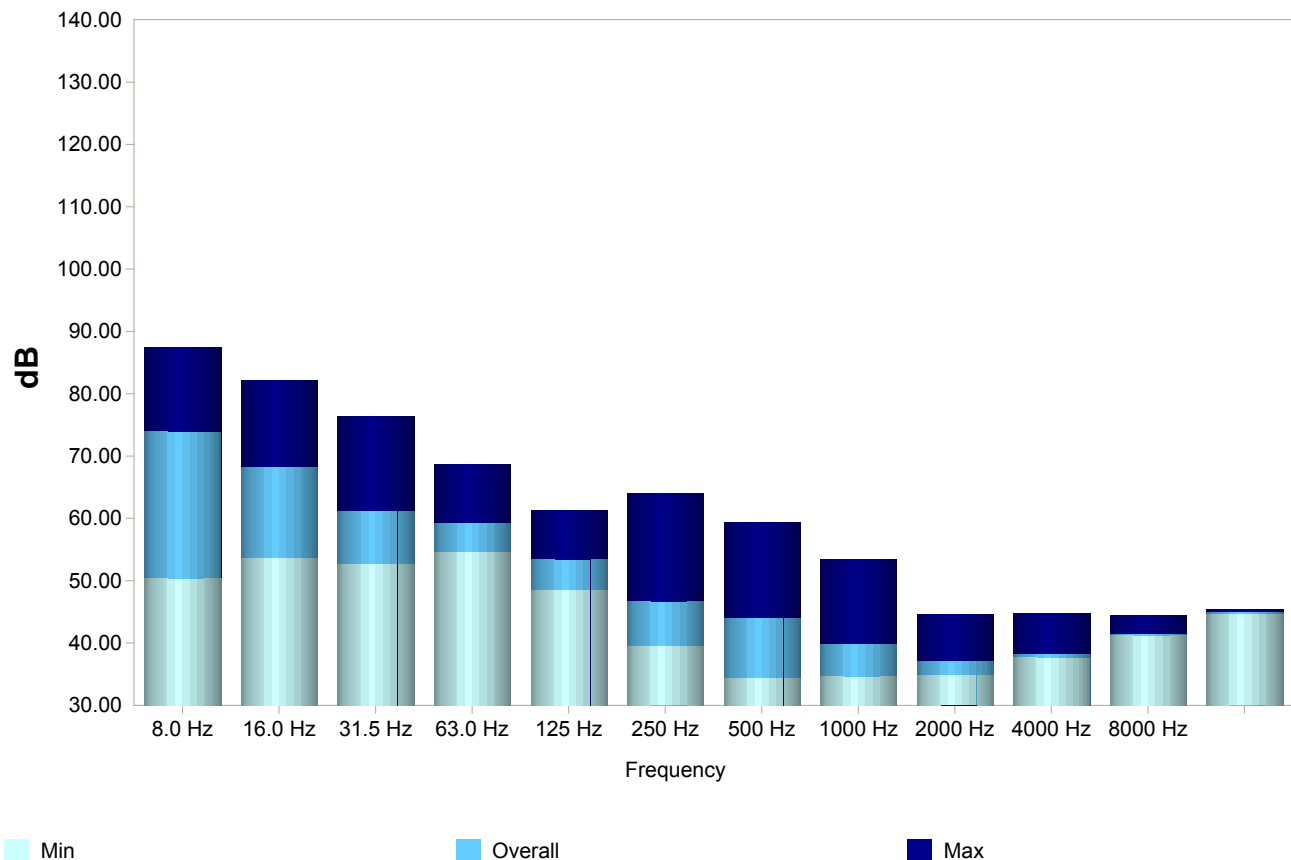
Serial Number:	01146	Start:	2008 Jul 24 14:10:09
Model Number:	LxT1	Stop:	2008 Jul 24 14:20:46
RMS Weighting:	A Weighting	Run Time:	00:08:28
Peak Weighting::	Z Weighting	Pre Calibration:	2008 Jul 24 14:09:45
Detector:	Slow	Post Calibration:	None
Preamp:	PRMLXT1	Deviation:	---
Integration Method:	Exponential	OBA Range:	Normal
		OBA Bandwidth:	1/1 and 1/3

Leq:	45.7 dBA	L5.0:	50.8 dBA
Lmax:	59.7 dBA	L10.0:	48.0 dBA
Lpeak (max):	102.5 dB	L33.3:	44.0 dBA
Min:	40.0 dBA	L50.0:	42.8 dBA
Event Counts (SPL Trigger 85.0 dB):	0	L66.6:	42.1 dBA
Event Counts (SPL Trigger 115.0 dB):	0	L90.0:	41.0 dBA
Event Counts (Lpeak Trigger 135.0 dB):	0		

Dose:	0.0	0.0 %	Lep (8):	28.2 dBA
Projected Dose:	0.0	0.0 %	LE:	72.8 dBA
Projected TWA:	---	---	SE:	2.1 $\mu\text{Pa}^2\text{hr}$
TWA (8):	---	---	SE(8):	119.1 $\mu\text{Pa}^2\text{hr}$
Name:	OSHA-1	OSHA-2	SE(40):	595.6 $\mu\text{Pa}^2\text{hr}$
Exchange Rate:	5	5		
Threshold:	90	80 dBA		
Criterion Level:	90.0	90.0 dBA		
Criterion Duration:	8.0	8.0 hours		

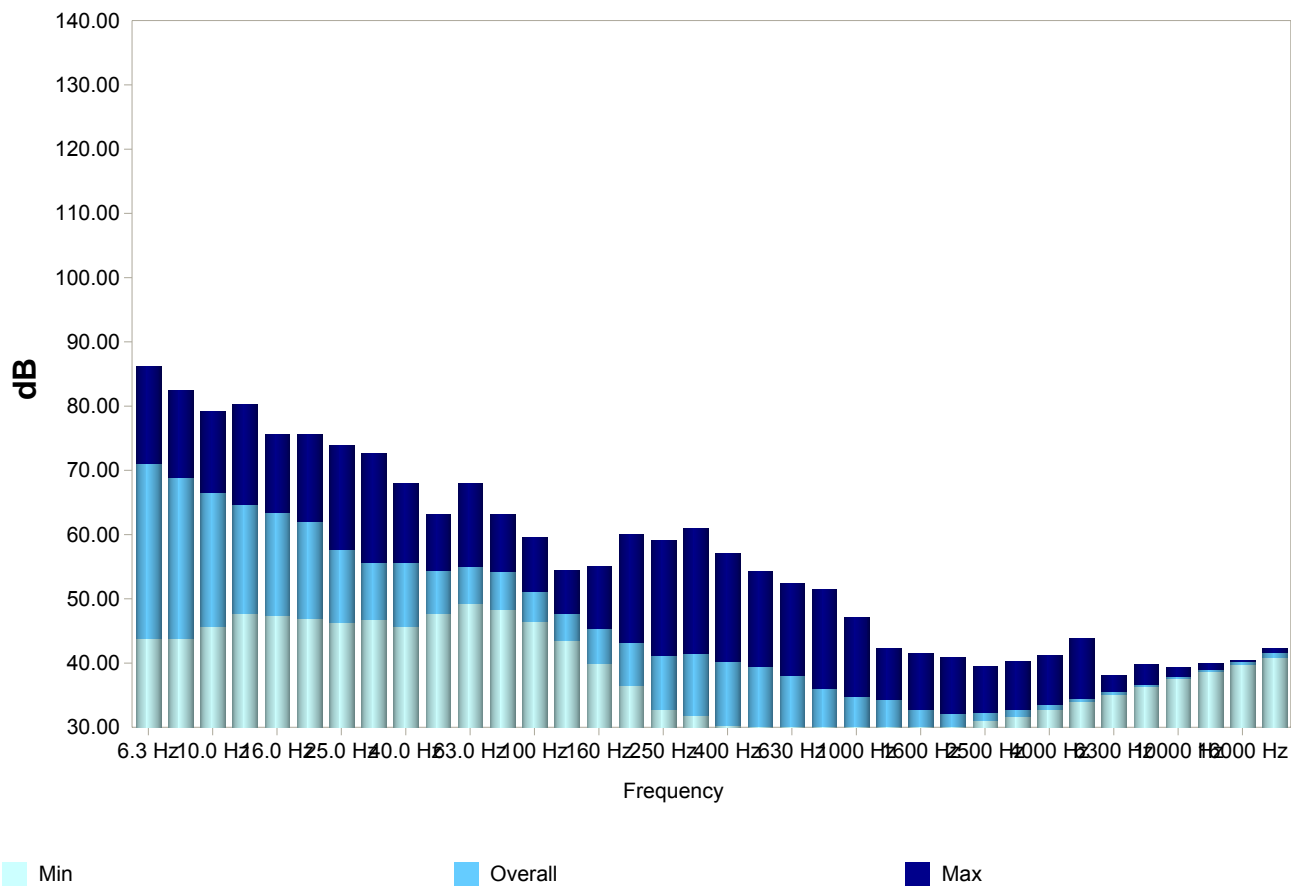
Note:

## 1/1 Octave



Serial Number:	01146	Start:	2008 Jul 24 14:10:09
Model Number:	LxT1	Stop:	2008 Jul 24 14:20:46
RMS Weighting:	A Weighting	Run Time:	00:08:28
Peak Weighting::	Z Weighting	Pre Calibration:	2008 Jul 24 14:09:45
Detector:	Slow	Post Calibration:	None
Preamp:	PRMLXT1	Deviation:	---
Integration Method:	Exponential	OBA Range:	Normal
		OBA Bandwidth:	1/1 and 1/3

## 1/3 Octave



## **APPENDIX C**

### OFF-SITE NOISE CONTOUR CALCULATIONS



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
Road Name: Interim SR-905  
Road Segment: Heritage Rd. To Cactus Rd.

Project Name: Otay Business Park  
Job Number: 3643  
Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 64,299 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 6,430 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.95	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-2.59	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-3.84	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.8	66.3	64.2	72.2	72.5
Medium Trucks:	76.7	74.9	70.4	68.3	76.3	76.6
Heavy Trucks:	79.4	77.7	73.1	71.0	79.0	79.3
Vehicle Noise:	81.8	80.1	75.5	73.4	81.4	81.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,522	4,813	15,219	48,128
CNEL:	1,628	5,148	16,281	51,485

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
Road Name: Interim SR-905  
Road Segment: Cactus Rd. to Britannia Blvd.

Project Name: Otay Business Park  
Job Number: 3643  
Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 71,080 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 7,108 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.38	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-2.15	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-3.40	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.0	71.3	66.7	64.6	72.6	72.9
Medium Trucks:	77.1	75.4	70.8	68.7	76.7	77.0
Heavy Trucks:	79.9	78.1	73.6	71.5	79.4	79.7
Vehicle Noise:	82.3	80.5	76.0	73.9	81.8	82.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,682	5,320	16,824	53,203
CNEL:	1,800	5,691	17,998	56,914

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Interim SR-905  
 Road Segment: Britannia Blvd. to La Media Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 58,999 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 5,900 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:			0.0
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.57	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-2.96	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-4.21	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.2	70.5	65.9	63.8	71.8	72.1
Medium Trucks:	76.3	74.6	70.0	67.9	75.9	76.2
Heavy Trucks:	79.1	77.3	72.8	70.7	78.6	78.9
Vehicle Noise:	81.5	79.7	75.2	73.1	81.0	81.3

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,396	4,416	13,965	44,161
CNEL:	1,494	4,724	14,939	47,241

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Interim SR-905  
 Road Segment: La Media Rd. to Piper Ranch Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 44,523 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 4,452 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 87 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	101.157				
Road Grade: 0.0%		Medium Trucks:	101.070				
Left View: -90.0 degrees		Heavy Trucks:	101.078				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.76	-3.13	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-3.77	-3.13	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-5.02	-3.13	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	68.1	63.5	61.4	69.4	69.7
Medium Trucks:	74.1	72.3	67.8	65.7	73.7	74.0
Heavy Trucks:	77.2	75.5	70.9	68.8	76.8	77.1
Vehicle Noise:	79.5	77.7	73.1	71.1	79.0	79.3

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	878	2,777	8,781	27,768
CNEL:	939	2,970	9,393	29,704

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Interim SR-905  
 Road Segment: Piper Ranch Rd. to SR-125

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 43,109 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 4,311 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.21	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-4.32	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-5.57	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	69.1	64.6	62.5	70.4	70.7
Medium Trucks:	75.0	73.2	68.6	66.6	74.5	74.8
Heavy Trucks:	77.7	75.9	71.4	69.3	77.3	77.6
Vehicle Noise:	80.1	78.4	73.8	71.7	79.7	80.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,020	3,227	10,204	32,267
CNEL:	1,092	3,452	10,915	34,518

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Otay Mesa Road  
 Road Segment: SR-125 to Interim SR-905 Conne

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 16,686 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,669 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 87 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 101.157					
Road Grade: 0.0%		Medium Trucks: 101.070					
Left View: -90.0 degrees		Heavy Trucks: 101.078					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.50	-3.13	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-8.03	-3.13	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-9.28	-3.13	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.8	59.3	57.2	65.1	65.4
Medium Trucks:	69.8	68.1	63.5	61.4	69.4	69.7
Heavy Trucks:	73.0	71.2	66.7	64.6	72.5	72.8
Vehicle Noise:	75.2	73.4	68.9	66.8	74.8	75.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	329	1,041	3,291	10,407
CNEL:	352	1,113	3,520	11,132

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Otay Mesa Road  
 Road Segment: Interim SR-905 Connector to Harv

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	9,738 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	974 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	50 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	87 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 101.157					
Road Grade:	0.0%	Medium Trucks: 101.070					
Left View:	-90.0 degrees	Heavy Trucks: 101.078					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.84	-3.13	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-10.37	-3.13	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-11.62	-3.13	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.2	61.5	56.9	54.8	62.8	63.1
Medium Trucks:	67.5	65.7	61.2	59.1	67.1	67.4
Heavy Trucks:	70.6	68.9	64.3	62.2	70.2	70.5
Vehicle Noise:	72.9	71.1	66.5	64.5	72.4	72.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	192	607	1,921	6,073
CNEL:	205	650	2,054	6,497

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Otay Mesa Road  
 Road Segment: Harvest Rd. to Sanyo Ave.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	8,224 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	822 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	50 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	74 feet						
<b>Site Data</b>		VehicleType	Day	Evening	Night	Daily	
		Autos: 80.0% 7.0% 13.0% 72.00%					
		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
		<b>Noise Source Elevations (in feet)</b>					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		<b>Lane Equivalent Distance (in feet)</b>					
		Autos: 103.711					
Medium Trucks: 103.626							
Heavy Trucks: 103.634							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-4.57	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-11.10	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-12.35	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.4	60.6	56.1	54.0	62.0	62.3
Medium Trucks:	66.7	64.9	60.3	58.3	66.2	66.5
Heavy Trucks:	69.8	68.0	63.5	61.4	69.4	69.6
Vehicle Noise:	72.0	70.3	65.7	63.6	71.6	71.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	158	500	1,582	5,003
CNEL:	169	535	1,692	5,351

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Otay Mesa Road  
 Road Segment: Sanyo Ave. to Enrico Fermi Dr.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	9,133 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	913 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	24 feet						
<b>Site Data</b>		VehicleType	Day	Evening	Night	Daily	
		Autos: 80.0% 7.0% 13.0% 72.00%					
		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
		<b>Noise Source Elevations (in feet)</b>					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006      Grade Adjustment: 0.0					
		<b>Lane Equivalent Distance (in feet)</b>					
		Autos: 109.458					
Medium Trucks: 109.377							
Heavy Trucks: 109.385							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.15	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-9.68	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-10.93	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.9	58.1	53.6	51.5	59.5	59.7
Medium Trucks:	64.6	62.8	58.2	56.2	64.1	64.4
Heavy Trucks:	68.6	66.8	62.3	60.2	68.2	68.5
Vehicle Noise:	70.4	68.7	64.1	62.0	70.0	70.3

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	348	1,102	3,484
CNEL:	118	373	1,179	3,727

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Airway Road  
 Road Segment: Sanyo Ave. to Paseo de La Ameri

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	5,649 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	565 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	14 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 109.891					
Road Grade:	0.0%	Medium Trucks: 109.810					
Left View:	-90.0 degrees	Heavy Trucks: 109.818					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.23	-3.49	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-11.77	-3.49	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-13.01	-3.49	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.8	56.0	51.5	49.4	57.4	57.6
Medium Trucks:	62.5	60.7	56.1	54.1	62.0	62.3
Heavy Trucks:	66.5	64.7	60.2	58.1	66.1	66.3
Vehicle Noise:	68.3	66.6	62.0	59.9	67.9	68.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	215	679	2,147
CNEL:	73	230	726	2,296

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Airway Road  
 Road Segment: Paseo de La Americas to Michael

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	4,533 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	453 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.19	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-12.72	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-13.97	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.9	55.1	50.5	48.4	56.4	56.7
Medium Trucks:	61.5	59.8	55.2	53.1	61.1	61.4
Heavy Trucks:	65.6	63.8	59.2	57.2	65.1	65.4
Vehicle Noise:	67.4	65.6	61.1	59.0	67.0	67.3

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	173	547	1,729
CNEL:	59	185	585	1,850

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Airway Road  
 Road Segment: Michael Faraday Dr. to Enrico Fer

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	2,918 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	292 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.10	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-14.63	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-15.88	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.9	53.2	48.6	46.5	54.5	54.8
Medium Trucks:	59.6	57.9	53.3	51.2	59.2	59.5
Heavy Trucks:	63.6	61.9	57.3	55.2	63.2	63.5
Vehicle Noise:	65.5	63.7	59.2	57.1	65.1	65.3

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	111	352	1,113
CNEL:	38	119	377	1,191

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Siempre Viva Road  
 Road Segment: SR-905 to Paseo de Las America

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 26,653 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,665 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:	0.0		
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.12	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-6.41	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-7.66	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.0	62.5	60.4	68.3	68.6
Medium Trucks:	72.9	71.1	66.6	64.5	72.4	72.7
Heavy Trucks:	75.6	73.9	69.3	67.2	75.2	75.5
Vehicle Noise:	78.0	76.3	71.7	69.6	77.6	77.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	631	1,995	6,309	19,950
CNEL:	675	2,134	6,749	21,341

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Siempre Viva Road  
 Road Segment: Paseo de Las Americas to Michae

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	9,886 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	989 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	45 mph	Vehicle Mix					
Near/Far Lane Distance:	50 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 107.238					
Road Grade:	0.0%	Medium Trucks: 107.156					
Left View:	-90.0 degrees	Heavy Trucks: 107.164					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.31	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-9.85	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-11.10	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	60.0	55.4	53.4	61.3	61.6
Medium Trucks:	66.2	64.5	59.9	57.8	65.8	66.1
Heavy Trucks:	69.8	68.0	63.5	61.4	69.3	69.6
Vehicle Noise:	71.8	70.1	65.5	63.4	71.4	71.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	151	478	1,511	4,778
CNEL:	162	511	1,616	5,112

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Siempre Viva Road  
 Road Segment: Michael Faraday Dr. to Enrico Fer

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	6,442 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	644 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	45 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	50 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 107.238					
Road Grade:	0.0%	Medium Trucks: 107.156					
Left View:	-90.0 degrees	Heavy Trucks: 107.164					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.17	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-11.71	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-12.96	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.9	58.1	53.6	51.5	59.5	59.8
Medium Trucks:	64.4	62.6	58.0	56.0	63.9	64.2
Heavy Trucks:	67.9	66.2	61.6	59.5	67.5	67.8
Vehicle Noise:	70.0	68.2	63.6	61.6	69.5	69.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	98	311	985	3,114
CNEL:	105	333	1,053	3,331

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: La Media Road  
 Road Segment: Interim SR-905 (Otay Mesa Rd.) t

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	15,225 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	1,523 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	45 mph	Vehicle Mix					
Near/Far Lane Distance:	50 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 107.238					
Road Grade:	0.0%	Medium Trucks: 107.156					
Left View:	-90.0 degrees	Heavy Trucks: 107.164					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.44	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-7.97	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-9.22	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.6	61.9	57.3	55.2	63.2	63.5
Medium Trucks:	68.1	66.3	61.8	59.7	67.7	68.0
Heavy Trucks:	71.7	69.9	65.3	63.2	71.2	71.5
Vehicle Noise:	73.7	71.9	67.4	65.3	73.3	73.5

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	233	736	2,327	7,359
CNEL:	249	787	2,489	7,872

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
Road Name: SR-125  
Road Segment: North of Otay Mesa Rd.

Project Name: Otay Business Park  
Job Number: 3643  
Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 30,000 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 3,000 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 64 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 105.361					
Road Grade: 0.0%		Medium Trucks: 105.277					
Left View: -90.0 degrees		Heavy Trucks: 105.285					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.64	-3.31	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-5.90	-3.30	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-7.15	-3.30	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.3	62.8	60.7	68.7	69.0
Medium Trucks:	73.2	71.4	66.9	64.8	72.8	73.1
Heavy Trucks:	75.9	74.2	69.6	67.5	75.5	75.8
Vehicle Noise:	78.4	76.6	72.0	69.9	77.9	78.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	680	2,151	6,803	21,512
CNEL:	728	2,301	7,277	23,012

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Existing SR-905  
 Road Segment: Airway Rd. to Siempre Viva Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 37,823 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 3,782 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 74 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:	0.0		
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos:	103.711				
Road Grade: 0.0%		Medium Trucks:	103.626				
Left View: -90.0 degrees		Heavy Trucks:	103.634				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.06	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-4.48	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-5.73	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.0	67.3	62.7	60.6	68.6	68.9
Medium Trucks:	73.3	71.5	67.0	64.9	72.9	73.1
Heavy Trucks:	76.4	74.7	70.1	68.0	76.0	76.3
Vehicle Noise:	78.6	76.9	72.3	70.2	78.2	78.5

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	728	2,301	7,276	23,007
CNEL:	778	2,461	7,783	24,612

Friday, May 07, 2010

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Existing SR-905  
 Road Segment: South of Siempre Viva Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 28,000 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,800 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 64 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 105.361					
Road Grade: 0.0%		Medium Trucks: 105.277					
Left View: -90.0 degrees		Heavy Trucks: 105.285					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.34	-3.31	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-6.20	-3.30	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-7.45	-3.30	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.1	62.5	60.4	68.4	68.7
Medium Trucks:	72.9	71.1	66.6	64.5	72.5	72.8
Heavy Trucks:	75.6	73.9	69.3	67.2	75.2	75.5
Vehicle Noise:	78.1	76.3	71.7	69.6	77.6	77.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	635	2,008	6,349	20,077
CNEL:	679	2,148	6,792	21,478

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Sanyo Avenue  
 Road Segment: Otay Mesa Rd. to Airway Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	2,666 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	267 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	45 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	50 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 107.238					
Road Grade:	0.0%	Medium Trucks: 107.156					
Left View:	-90.0 degrees	Heavy Trucks: 107.164					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-9.01	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-15.54	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-16.79	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.1	54.3	49.8	47.7	55.6	55.9
Medium Trucks:	60.5	58.8	54.2	52.1	60.1	60.4
Heavy Trucks:	64.1	62.3	57.8	55.7	63.6	63.9
Vehicle Noise:	66.1	64.4	59.8	57.7	65.7	66.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	129	407	1,289
CNEL:	44	138	436	1,379

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Enrico Fermi Drive  
 Road Segment: Otay Mesa Rd. to Airway Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	2,681 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	268 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.47	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-15.00	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-16.25	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.6	52.8	48.3	46.2	54.1	54.4
Medium Trucks:	59.2	57.5	52.9	50.8	58.8	59.1
Heavy Trucks:	63.3	61.5	57.0	54.9	62.8	63.1
Vehicle Noise:	65.1	63.4	58.8	56.7	64.7	65.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	102	323	1,023
CNEL:	35	109	346	1,094

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex  
 Road Name: Enrico Fermi Drive  
 Road Segment: Airway Rd. to Siempre Viva Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	7,110 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	711 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	50 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	74 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 103.711					
Road Grade:	0.0%	Medium Trucks: 103.626					
Left View:	-90.0 degrees	Heavy Trucks: 103.634					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-5.20	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-11.74	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-12.98	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	60.0	55.4	53.4	61.3	61.6
Medium Trucks:	66.0	64.3	59.7	57.6	65.6	65.9
Heavy Trucks:	69.2	67.4	62.8	60.8	68.7	69.0
Vehicle Noise:	71.4	69.6	65.1	63.0	70.9	71.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	137	432	1,368	4,325
CNEL:	146	463	1,463	4,627

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Interim SR-905  
 Road Segment: Heritage Rd. To Cactus Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 85,395 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 8,539 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	5.18	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-1.35	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-2.60	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.8	72.1	67.5	65.4	73.4	73.7
Medium Trucks:	77.9	76.2	71.6	69.5	77.5	77.8
Heavy Trucks:	80.7	78.9	74.4	72.3	80.2	80.5
Vehicle Noise:	83.1	81.3	76.8	74.7	82.6	82.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2,021	6,392	20,213	63,918
CNEL:	2,162	6,838	21,623	68,377

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Interim SR-905  
 Road Segment: Cactus Rd. to Britannia Blvd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 92,511 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 9,251 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	5.53	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-1.01	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-2.26	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.2	72.4	67.9	65.8	73.7	74.0
Medium Trucks:	78.3	76.5	72.0	69.9	77.8	78.1
Heavy Trucks:	81.0	79.3	74.7	72.6	80.6	80.9
Vehicle Noise:	83.4	81.7	77.1	75.0	83.0	83.3

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2,190	6,924	21,897	69,245
CNEL:	2,342	7,407	23,424	74,074

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Interim SR-905  
 Road Segment: Britannia Blvd. to La Media Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 81,100 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 8,110 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:	0.0		
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.95	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-1.58	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-2.83	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	71.9	67.3	65.2	73.2	73.5
Medium Trucks:	77.7	75.9	71.4	69.3	77.3	77.6
Heavy Trucks:	80.5	78.7	74.1	72.1	80.0	80.3
Vehicle Noise:	82.9	81.1	76.5	74.5	82.4	82.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,920	6,070	19,196	60,703
CNEL:	2,054	6,494	20,535	64,937

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Interim SR-905  
 Road Segment: La Media Rd. to Piper Ranch Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 67,628 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 6,763 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 87 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 101.157					
Road Grade: 0.0%		Medium Trucks: 101.070					
Left View: -90.0 degrees		Heavy Trucks: 101.078					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.58	-3.13	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-1.95	-3.13	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-3.20	-3.13	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	69.9	65.3	63.3	71.2	71.5
Medium Trucks:	75.9	74.2	69.6	67.5	75.5	75.8
Heavy Trucks:	79.1	77.3	72.7	70.6	78.6	78.9
Vehicle Noise:	81.3	79.5	75.0	72.9	80.8	81.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,334	4,218	13,338	42,177
CNEL:	1,427	4,512	14,268	45,119

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Interim SR-905  
 Road Segment: Piper Ranch Rd. to SR-125

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 66,549 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 6,655 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.10	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-2.44	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-3.69	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	71.0	66.4	64.4	72.3	72.6
Medium Trucks:	76.9	75.1	70.5	68.4	76.4	76.7
Heavy Trucks:	79.6	77.8	73.3	71.2	79.2	79.4
Vehicle Noise:	82.0	80.2	75.7	73.6	81.6	81.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,575	4,981	15,752	49,812
CNEL:	1,685	5,329	16,851	53,286

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Otay Mesa Road  
 Road Segment: SR-125 to Interim SR-905 Conne

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 40,126 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 4,013 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 87 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 101.157					
Road Grade: 0.0%		Medium Trucks: 101.070					
Left View: -90.0 degrees		Heavy Trucks: 101.078					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.31	-3.13	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-4.22	-3.13	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-5.47	-3.13	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	67.6	63.1	61.0	68.9	69.2
Medium Trucks:	73.7	71.9	67.3	65.3	73.2	73.5
Heavy Trucks:	76.8	75.0	70.5	68.4	76.3	76.6
Vehicle Noise:	79.0	77.2	72.7	70.6	78.6	78.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	791	2,503	7,914	25,025
CNEL:	847	2,677	8,466	26,771

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Otay Mesa Road  
 Road Segment: Interim SR-905 Connector to Harv

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
<b>Highway Data</b>				<b>Site Conditions (Hard = 10, Soft = 15)</b>				
Average Daily Traffic (Adt): 26,481 vehicles				Autos: 10				
Peak Hour Percentage: 10%				Medium Trucks (2 Axles): 10				
Peak Hour Volume: 2,648 vehicles				Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 50 mph				<b>Vehicle Mix</b>				
Near/Far Lane Distance: 87 feet				VehicleType	Day	Evening	Night	Daily
<b>Site Data</b>				Autos: 80.0% 7.0% 13.0% 72.00%				
Barrier Height: 0.0 feet				Medium Trucks: 80.0% 7.0% 13.0% 16.00%				
Barrier Type (0-Wall, 1-Berm): 0.0				Heavy Trucks: 80.0% 7.0% 13.0% 12.00%				
Centerline Dist. to Barrier: 100.0 feet				<b>Noise Source Elevations (in feet)</b>				
Centerline Dist. to Observer: 110.0 feet				Autos: 0.000				
Barrier Distance to Observer: 10.0 feet				Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet				Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet				<b>Lane Equivalent Distance (in feet)</b>				
Road Elevation: 0.0 feet				Autos: 101.157				
Road Grade: 0.0%				Medium Trucks: 101.070				
Left View: -90.0 degrees				Heavy Trucks: 101.078				
Right View: 90.0 degrees								
<b>FHWA Noise Model Calculations</b>								
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten	
Autos:	70.20	0.51	-3.13	0.00	-1.04	0.000	0.000	
Medium Trucks:	81.00	-6.02	-3.13	0.00	-1.15	0.000	0.000	
Heavy Trucks:	85.38	-7.27	-3.13	0.00	-1.43	0.000	0.000	
<b>Unmitigated Noise Levels (without Topo and barrier attenuation)</b>								
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL		
Autos:	67.6	65.8	61.3	59.2	67.1	67.4		
Medium Trucks:	71.9	70.1	65.5	63.4	71.4	71.7		
Heavy Trucks:	75.0	73.2	68.7	66.6	74.5	74.8		
Vehicle Noise:	77.2	75.4	70.9	68.8	76.8	77.1		
<b>Centerline Distance to Noise Contour (in feet)</b>								
	70 dBA	65 dBA	60 dBA	55 dBA				
Ldn:	522	1,652	5,223	16,515				
CNEL:	559	1,767	5,587	17,667				

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Otay Mesa Road  
 Road Segment: Harvest Rd. to Sanyo Ave.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 24,967 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,497 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 74 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	103.711				
Road Grade: 0.0%		Medium Trucks:	103.626				
Left View: -90.0 degrees		Heavy Trucks:	103.634				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.25	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-6.28	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-7.53	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	65.5	60.9	58.8	66.8	67.1
Medium Trucks:	71.5	69.7	65.2	63.1	71.0	71.3
Heavy Trucks:	74.6	72.9	68.3	66.2	74.2	74.5
Vehicle Noise:	76.8	75.1	70.5	68.4	76.4	76.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	480	1,519	4,803	15,187
CNEL:	514	1,625	5,138	16,246

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Otay Mesa Road  
 Road Segment: Sanyo Ave. to Enrico Fermi Dr.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 22,527 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,253 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 40 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 24 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:			0.0
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	109.458				
Road Grade: 0.0%		Medium Trucks:	109.377				
Left View: -90.0 degrees		Heavy Trucks:	109.385				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.77	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-5.76	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-7.01	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.8	62.1	57.5	55.4	63.4	63.7
Medium Trucks:	68.5	66.7	62.2	60.1	68.1	68.3
Heavy Trucks:	72.5	70.8	66.2	64.1	72.1	72.4
Vehicle Noise:	74.4	72.6	68.0	66.0	73.9	74.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	272	859	2,718	8,595
CNEL:	291	919	2,907	9,194

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Airway Road  
 Road Segment: Sanyo Ave. to Paseo de La Ameri

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	8,998 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	900 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	14 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 109.891					
Road Grade:	0.0%	Medium Trucks: 109.810					
Left View:	-90.0 degrees	Heavy Trucks: 109.818					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.21	-3.49	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-9.74	-3.49	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-10.99	-3.49	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.8	58.1	53.5	51.4	59.4	59.7
Medium Trucks:	64.5	62.7	58.2	56.1	64.0	64.3
Heavy Trucks:	68.5	66.8	62.2	60.1	68.1	68.4
Vehicle Noise:	70.4	68.6	64.0	62.0	69.9	70.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	108	342	1,081	3,419
CNEL:	116	366	1,157	3,658

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Airway Road  
 Road Segment: Paseo de La Americas to Michael

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	7,882 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	788 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.79	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-10.32	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-11.57	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.3	57.5	52.9	50.9	58.8	59.1
Medium Trucks:	63.9	62.2	57.6	55.5	63.5	63.8
Heavy Trucks:	68.0	66.2	61.6	59.6	67.5	67.8
Vehicle Noise:	69.8	68.0	63.5	61.4	69.4	69.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	301	951	3,007
CNEL:	102	322	1,017	3,217

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Airway Road  
 Road Segment: Michael Faraday Dr. to Enrico Fer

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	6,267 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	627 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.78	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-11.31	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-12.56	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.3	56.5	51.9	49.9	57.8	58.1
Medium Trucks:	62.9	61.2	56.6	54.5	62.5	62.8
Heavy Trucks:	67.0	65.2	60.6	58.6	66.5	66.8
Vehicle Noise:	68.8	67.0	62.5	60.4	68.4	68.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	239	756	2,391
CNEL:	81	256	809	2,558

Friday, May 07, 2010

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Siempre Viva Road  
 Road Segment: SR-905 to Paseo de Las America

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 41,722 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 4,172 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:			0.0
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.07	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-4.46	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-5.71	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	69.0	64.4	62.3	70.3	70.6
Medium Trucks:	74.8	73.1	68.5	66.4	74.4	74.7
Heavy Trucks:	77.6	75.8	71.2	69.2	77.1	77.4
Vehicle Noise:	80.0	78.2	73.6	71.6	79.5	79.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	988	3,123	9,875	31,229
CNEL:	1,056	3,341	10,564	33,407

Friday, May 07, 2010

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Siempre Viva Road  
 Road Segment: Paseo de Las Americas to Michae

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 24,955 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,495 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 50 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 107.238					
Road Grade: 0.0%		Medium Trucks: 107.156					
Left View: -90.0 degrees		Heavy Trucks: 107.164					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.71	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-5.82	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-7.07	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.8	64.0	59.5	57.4	65.3	65.6
Medium Trucks:	70.2	68.5	63.9	61.8	69.8	70.1
Heavy Trucks:	73.8	72.0	67.5	65.4	73.4	73.7
Vehicle Noise:	75.8	74.1	69.5	67.4	75.4	75.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	381	1,206	3,814	12,062
CNEL:	408	1,290	4,080	12,903

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Siempre Viva Road  
 Road Segment: Michael Faraday Dr. to Enrico Fer

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>				
Average Daily Traffic (Adt): 21,511 vehicles		Autos: 10				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10				
Peak Hour Volume: 2,151 vehicles		Heavy Trucks (3+ Axles): 10				
Vehicle Speed: 45 mph		<b>Vehicle Mix</b>				
Near/Far Lane Distance: 50 feet		VehicleType	Day	Evening	Night	Daily
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%				
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%				
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>				
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>				
Road Elevation: 0.0 feet		Autos: 107.238				
Road Grade: 0.0%		Medium Trucks: 107.156				
Left View: -90.0 degrees		Heavy Trucks: 107.164				
Right View: 90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.06	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-6.47	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-7.72	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	63.4	58.8	56.7	64.7	65.0
Medium Trucks:	69.6	67.8	63.3	61.2	69.2	69.5
Heavy Trucks:	73.2	71.4	66.8	64.8	72.7	73.0
Vehicle Noise:	75.2	73.4	68.9	66.8	74.8	75.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	329	1,040	3,288	10,397
CNEL:	352	1,112	3,517	11,123

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: La Media Road  
 Road Segment: Interim SR-905 (Otay Mesa Rd.) t

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 15,895 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,590 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 50 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 107.238					
Road Grade: 0.0%		Medium Trucks: 107.156					
Left View: -90.0 degrees		Heavy Trucks: 107.164					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.25	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-7.78	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-9.03	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.8	62.1	57.5	55.4	63.4	63.7
Medium Trucks:	68.3	66.5	62.0	59.9	67.8	68.1
Heavy Trucks:	71.8	70.1	65.5	63.4	71.4	71.7
Vehicle Noise:	73.9	72.1	67.6	65.5	73.4	73.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	243	768	2,430	7,683
CNEL:	260	822	2,599	8,219

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: SR-125  
 Road Segment: North of Otay Mesa Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 36,697 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 3,670 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 64 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 105.361					
Road Grade: 0.0%		Medium Trucks: 105.277					
Left View: -90.0 degrees		Heavy Trucks: 105.285					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.51	-3.31	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-5.02	-3.30	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-6.27	-3.30	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.2	63.7	61.6	69.5	69.8
Medium Trucks:	74.1	72.3	67.8	65.7	73.6	73.9
Heavy Trucks:	76.8	75.1	70.5	68.4	76.4	76.7
Vehicle Noise:	79.2	77.5	72.9	70.8	78.8	79.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	832	2,631	8,321	26,314
CNEL:	890	2,815	8,902	28,149

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Existing SR-905  
 Road Segment: Airway Rd. to Siempre Viva Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 51,217 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 5,122 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 74 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 103.711					
Road Grade: 0.0%		Medium Trucks: 103.626					
Left View: -90.0 degrees		Heavy Trucks: 103.634					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.37	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-3.16	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-4.41	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.6	64.0	61.9	69.9	70.2
Medium Trucks:	74.6	72.8	68.3	66.2	74.2	74.5
Heavy Trucks:	77.7	76.0	71.4	69.3	77.3	77.6
Vehicle Noise:	80.0	78.2	73.6	71.6	79.5	79.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	985	3,115	9,852	31,155
CNEL:	1,054	3,333	10,539	33,328

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Existing SR-905  
 Road Segment: South of Siempre Viva Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 29,674 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,967 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 64 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 105.361					
Road Grade: 0.0%		Medium Trucks: 105.277					
Left View: -90.0 degrees		Heavy Trucks: 105.285					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.59	-3.31	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-5.94	-3.30	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-7.19	-3.30	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.3	62.7	60.7	68.6	68.9
Medium Trucks:	73.2	71.4	66.8	64.8	72.7	73.0
Heavy Trucks:	75.9	74.1	69.6	67.5	75.5	75.8
Vehicle Noise:	78.3	76.5	72.0	69.9	77.9	78.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	673	2,128	6,729	21,278
CNEL:	720	2,276	7,198	22,762

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Sanyo Avenue  
 Road Segment: Otay Mesa Rd. to Airway Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	6,015 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	601 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	45 mph	Vehicle Mix					
Near/Far Lane Distance:	50 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 107.238					
Road Grade:	0.0%	Medium Trucks: 107.156					
Left View:	-90.0 degrees	Heavy Trucks: 107.164					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.47	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-12.00	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-13.25	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.6	57.8	53.3	51.2	59.2	59.5
Medium Trucks:	64.1	62.3	57.7	55.7	63.6	63.9
Heavy Trucks:	67.6	65.9	61.3	59.2	67.2	67.5
Vehicle Noise:	69.7	67.9	63.3	61.3	69.2	69.5

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	291	919	2,907
CNEL:	98	311	984	3,110

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Enrico Fermi Drive  
 Road Segment: Otay Mesa Rd. to Airway Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 17,750 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,775 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 24 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 109.458					
Road Grade: 0.0%		Medium Trucks: 109.377					
Left View: -90.0 degrees		Heavy Trucks: 109.385					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.26	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-6.79	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-8.04	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.8	61.0	56.5	54.4	62.3	62.6
Medium Trucks:	67.5	65.7	61.1	59.1	67.0	67.3
Heavy Trucks:	71.5	69.7	65.2	63.1	71.0	71.3
Vehicle Noise:	73.3	71.6	67.0	64.9	72.9	73.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	214	677	2,141	6,772
CNEL:	229	724	2,291	7,244

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# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + P  
 Road Name: Enrico Fermi Drive  
 Road Segment: Airway Rd. to Siempre Viva Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	8,784 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	878 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	50 mph	Vehicle Mix					
Near/Far Lane Distance:	74 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 103.711					
Road Grade:	0.0%	Medium Trucks: 103.626					
Left View:	-90.0 degrees	Heavy Trucks: 103.634					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-4.28	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-10.82	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-12.07	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	60.9	56.4	54.3	62.2	62.5
Medium Trucks:	66.9	65.2	60.6	58.5	66.5	66.8
Heavy Trucks:	70.1	68.3	63.8	61.7	69.6	69.9
Vehicle Noise:	72.3	70.5	66.0	63.9	71.9	72.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	169	534	1,690	5,343
CNEL:	181	572	1,808	5,716

Friday, May 07, 2010

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Otay Mesa Road  
 Road Segment: Heritage Rd. To Cactus Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 28,855 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,885 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.47	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-6.07	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-7.31	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.4	62.8	60.7	68.7	69.0
Medium Trucks:	73.2	71.5	66.9	64.8	72.8	73.1
Heavy Trucks:	76.0	74.2	69.6	67.6	75.5	75.8
Vehicle Noise:	78.4	76.6	72.0	70.0	77.9	78.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	683	2,160	6,830	21,598
CNEL:	731	2,310	7,306	23,104

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Otay Mesa Road  
 Road Segment: Cactus Rd. to Britannia Blvd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 31,825 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 3,183 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.89	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-5.64	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-6.89	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.8	63.2	61.2	69.1	69.4
Medium Trucks:	73.6	71.9	67.3	65.2	73.2	73.5
Heavy Trucks:	76.4	74.6	70.1	68.0	76.0	76.2
Vehicle Noise:	78.8	77.0	72.5	70.4	78.4	78.6

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	753	2,382	7,533	23,821
CNEL:	806	2,548	8,058	25,483

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: SR-125 to Harvest Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 30,996 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 3,100 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 87 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos: 101.157					
Road Grade: 0.0%		Medium Trucks: 101.070					
Left View: -90.0 degrees		Heavy Trucks: 101.078					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.19	-3.13	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-5.34	-3.13	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-6.59	-3.13	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.3	66.5	61.9	59.9	67.8	68.1
Medium Trucks:	72.5	70.8	66.2	64.1	72.1	72.4
Heavy Trucks:	75.7	73.9	69.3	67.3	75.2	75.5
Vehicle Noise:	77.9	76.1	71.6	69.5	77.4	77.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	611	1,933	6,113	19,331
CNEL:	654	2,068	6,539	20,680

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: Harvest Rd. to Sanyo Ave.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 10,526 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,053 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 74 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 103.711					
Road Grade: 0.0%		Medium Trucks: 103.626					
Left View: -90.0 degrees		Heavy Trucks: 103.634					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-3.50	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-10.03	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-11.28	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	61.7	57.1	55.1	63.0	63.3
Medium Trucks:	67.7	66.0	61.4	59.3	67.3	67.6
Heavy Trucks:	70.9	69.1	64.5	62.5	70.4	70.7
Vehicle Noise:	73.1	71.3	66.8	64.7	72.6	72.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	202	640	2,025	6,403
CNEL:	217	685	2,166	6,849

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: Sanyo Ave. to Vann Centre

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	2,926 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	293 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	24 feet						
<b>Site Data</b>		VehicleType	Day	Evening	Night	Daily	
		Autos: 80.0% 7.0% 13.0% 72.00%					
		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
		<b>Noise Source Elevations (in feet)</b>					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		<b>Lane Equivalent Distance (in feet)</b>					
		Autos: 109.458					
Medium Trucks: 109.377							
Heavy Trucks: 109.385							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.09	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-14.62	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-15.87	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.0	53.2	48.6	46.5	54.5	54.8
Medium Trucks:	59.6	57.9	53.3	51.2	59.2	59.5
Heavy Trucks:	63.7	61.9	57.3	55.3	63.2	63.5
Vehicle Noise:	65.5	63.7	59.2	57.1	65.1	65.4

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	112	353	1,116
CNEL:	38	119	378	1,194

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: Vann Centre to Enrico Fermi Dr.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	2,801 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	280 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.28	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-14.81	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-16.06	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.8	53.0	48.4	46.4	54.3	54.6
Medium Trucks:	59.4	57.7	53.1	51.0	59.0	59.3
Heavy Trucks:	63.5	61.7	57.1	55.1	63.0	63.3
Vehicle Noise:	65.3	63.6	59.0	56.9	64.9	65.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	107	338	1,069
CNEL:	36	114	362	1,143

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: Enrico Fermi Dr. to Alta Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 13,716 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,372 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 24 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos:	109.458				
Road Grade: 0.0%		Medium Trucks:	109.377				
Left View: -90.0 degrees		Heavy Trucks:	109.385				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.38	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-7.91	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-9.16	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	59.9	55.3	53.3	61.2	61.5
Medium Trucks:	66.3	64.6	60.0	57.9	65.9	66.2
Heavy Trucks:	70.4	68.6	64.0	62.0	69.9	70.2
Vehicle Noise:	72.2	70.5	65.9	63.8	71.8	72.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	165	523	1,655	5,233
CNEL:	177	560	1,770	5,598

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Airway Road  
 Road Segment: La Media Rd. to SR-905

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	8,695 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	869 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	14 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 109.891					
Road Grade:	0.0%	Medium Trucks: 109.810					
Left View:	-90.0 degrees	Heavy Trucks: 109.818					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.36	-3.49	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-9.89	-3.49	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-11.14	-3.49	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	57.9	53.3	51.3	59.2	59.5
Medium Trucks:	64.3	62.6	58.0	55.9	63.9	64.2
Heavy Trucks:	68.4	66.6	62.0	60.0	67.9	68.2
Vehicle Noise:	70.2	68.5	63.9	61.8	69.8	70.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	330	1,045	3,304
CNEL:	112	353	1,118	3,535

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Airway Road  
 Road Segment: SR-905 to Sanyo Ave.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	5,595 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	559 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	50 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	74 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 103.711					
Road Grade:	0.0%	Medium Trucks: 103.626					
Left View:	-90.0 degrees	Heavy Trucks: 103.634					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-6.24	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-12.78	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-14.03	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.7	59.0	54.4	52.3	60.3	60.6
Medium Trucks:	65.0	63.2	58.7	56.6	64.6	64.8
Heavy Trucks:	68.1	66.4	61.8	59.7	67.7	68.0
Vehicle Noise:	70.3	68.6	64.0	61.9	69.9	70.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	108	340	1,076	3,403
CNEL:	115	364	1,151	3,641

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Airway Road  
 Road Segment: Sanyo Ave. to Paseo de La Ameri

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 13,686 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,369 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 74 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 103.711					
Road Grade: 0.0%		Medium Trucks: 103.626					
Left View: -90.0 degrees		Heavy Trucks: 103.634					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.36	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-8.89	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-10.14	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	62.8	58.3	56.2	64.2	64.5
Medium Trucks:	68.9	67.1	62.6	60.5	68.4	68.7
Heavy Trucks:	72.0	70.2	65.7	63.6	71.6	71.9
Vehicle Noise:	74.2	72.5	67.9	65.8	73.8	74.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	263	833	2,633	8,325
CNEL:	282	891	2,816	8,906

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Airway Road  
 Road Segment: Paseo de La Americas to Michael

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	1,746 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	175 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet						
Site Data		VehicleType	Day	Evening	Night	Daily	
		Autos: 80.0% 7.0% 13.0% 72.00%					
		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 109.458					
Medium Trucks: 109.377							
Heavy Trucks: 109.385							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-10.33	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-16.86	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-18.11	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.7	50.9	46.4	44.3	52.3	52.6
Medium Trucks:	57.4	55.6	51.1	49.0	56.9	57.2
Heavy Trucks:	61.4	59.7	55.1	53.0	61.0	61.3
Vehicle Noise:	63.3	61.5	56.9	54.9	62.8	63.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	67	211	666
CNEL:	23	71	225	713

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Airway Road  
 Road Segment: Michael Faraday Dr. to Enrico Fer

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	2,701 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	270 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.44	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-14.97	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-16.22	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.6	52.8	48.3	46.2	54.2	54.5
Medium Trucks:	59.3	57.5	53.0	50.9	58.8	59.1
Heavy Trucks:	63.3	61.5	57.0	54.9	62.9	63.2
Vehicle Noise:	65.2	63.4	58.8	56.8	64.7	65.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	33	103	326	1,030
CNEL:	35	110	349	1,102

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Siempre Viva Road  
 Road Segment: Drucker Ln. to SR-905

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 20,510 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,051 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.02	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-7.55	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-8.80	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	65.9	61.3	59.2	67.2	67.5
Medium Trucks:	71.7	70.0	65.4	63.3	71.3	71.6
Heavy Trucks:	74.5	72.7	68.2	66.1	74.0	74.3
Vehicle Noise:	76.9	75.1	70.6	68.5	76.4	76.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	485	1,535	4,855	15,352
CNEL:	519	1,642	5,193	16,423

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Siempre Viva Road  
 Road Segment: SR-905 to Paseo de Las America

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 30,180 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 3,018 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.66	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-5.87	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-7.12	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.6	63.0	60.9	68.9	69.2
Medium Trucks:	73.4	71.7	67.1	65.0	73.0	73.3
Heavy Trucks:	76.2	74.4	69.8	67.8	75.7	76.0
Vehicle Noise:	78.6	76.8	72.2	70.2	78.1	78.4

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	714	2,259	7,144	22,590
CNEL:	764	2,417	7,642	24,165

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Siempre Viva Road  
 Road Segment: Paseo de Las Americas to Michae

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	1 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	0 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	45 mph	Vehicle Mix					
Near/Far Lane Distance:	50 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 107.238					
Road Grade:	0.0%	Medium Trucks: 107.156					
Left View:	-90.0 degrees	Heavy Trucks: 107.164					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-43.26	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-49.80	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-51.05	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	21.8	20.1	15.5	13.4	21.4	21.7
Medium Trucks:	26.3	24.5	20.0	17.9	25.8	26.1
Heavy Trucks:	29.8	28.1	23.5	21.4	29.4	29.7
Vehicle Noise:	31.9	30.1	25.5	23.5	31.4	31.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	0	0
CNEL:	0	0	0	1

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Siempre Viva Road  
 Road Segment: Michael Faraday Dr. to Enrico Fer

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	1 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	0 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	45 mph	Vehicle Mix					
Near/Far Lane Distance:	50 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 107.238					
Road Grade:	0.0%	Medium Trucks: 107.156					
Left View:	-90.0 degrees	Heavy Trucks: 107.164					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-43.26	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-49.80	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-51.05	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	21.8	20.1	15.5	13.4	21.4	21.7
Medium Trucks:	26.3	24.5	20.0	17.9	25.8	26.1
Heavy Trucks:	29.8	28.1	23.5	21.4	29.4	29.7
Vehicle Noise:	31.9	30.1	25.5	23.5	31.4	31.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	0	0
CNEL:	0	0	0	1

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: SR-125  
 Road Segment: North of Otay Mesa Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 11,481 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,148 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 64 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	105.361				
Road Grade: 0.0%		Medium Trucks:	105.277				
Left View: -90.0 degrees		Heavy Trucks:	105.285				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-3.54	-3.31	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-10.07	-3.30	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-11.32	-3.30	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	63.2	58.6	56.5	64.5	64.8
Medium Trucks:	69.0	67.3	62.7	60.6	68.6	68.9
Heavy Trucks:	71.8	70.0	65.5	63.4	71.3	71.6
Vehicle Noise:	74.2	72.4	67.9	65.8	73.7	74.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	260	823	2,603	8,232
CNEL:	278	881	2,785	8,807

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Existing SR-905  
 Road Segment: South of Siempre Viva Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 70,437 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 7,044 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.34	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-2.19	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-3.44	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.0	71.2	66.7	64.6	72.6	72.9
Medium Trucks:	77.1	75.3	70.8	68.7	76.7	77.0
Heavy Trucks:	79.8	78.1	73.5	71.4	79.4	79.7
Vehicle Noise:	82.2	80.5	75.9	73.8	81.8	82.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,667	5,272	16,672	52,722
CNEL:	1,784	5,640	17,835	56,400

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Sanyo Avenue  
 Road Segment: Otay Mesa Rd. to Airway Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 12,215 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,222 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 50 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 107.238					
Road Grade: 0.0%		Medium Trucks: 107.156					
Left View: -90.0 degrees		Heavy Trucks: 107.164					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.40	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-8.93	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-10.18	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	60.9	56.4	54.3	62.2	62.5
Medium Trucks:	67.1	65.4	60.8	58.7	66.7	67.0
Heavy Trucks:	70.7	68.9	64.4	62.3	70.3	70.6
Vehicle Noise:	72.7	71.0	66.4	64.3	72.3	72.6

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	187	590	1,867	5,904
CNEL:	200	632	1,997	6,316

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Enrico Fermi Drive  
 Road Segment: Otay Mesa Rd. to Airway Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 10,803 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,080 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 24 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 109.458					
Road Grade: 0.0%		Medium Trucks: 109.377					
Left View: -90.0 degrees		Heavy Trucks: 109.385					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.42	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-8.95	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-10.20	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	58.9	54.3	52.2	60.2	60.5
Medium Trucks:	65.3	63.5	59.0	56.9	64.9	65.2
Heavy Trucks:	69.3	67.6	63.0	60.9	68.9	69.2
Vehicle Noise:	71.2	69.4	64.9	62.8	70.7	71.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	130	412	1,303	4,122
CNEL:	139	441	1,394	4,409

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Alta Road  
 Road Segment: Calzada De La Fuente to Paseo D

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	6,787 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	679 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.44	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-10.97	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-12.22	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.6	56.8	52.3	50.2	58.2	58.5
Medium Trucks:	63.3	61.5	57.0	54.9	62.8	63.1
Heavy Trucks:	67.3	65.5	61.0	58.9	66.9	67.2
Vehicle Noise:	69.2	67.4	62.8	60.8	68.7	69.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	259	819	2,589
CNEL:	88	277	876	2,770

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: Alta Road  
 Road Segment: Paseo De La Fuente to Otay Mes

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	6,787 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	679 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.44	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-10.97	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-12.22	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.6	56.8	52.3	50.2	58.2	58.5
Medium Trucks:	63.3	61.5	57.0	54.9	62.8	63.1
Heavy Trucks:	67.3	65.5	61.0	58.9	66.9	67.2
Vehicle Noise:	69.2	67.4	62.8	60.8	68.7	69.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	259	819	2,589
CNEL:	88	277	876	2,770

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: New SR-905 Facility  
 Road Segment: West of La Media Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 85,162 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 8,516 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	5.17	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-1.37	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-2.61	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.8	72.1	67.5	65.4	73.4	73.7
Medium Trucks:	77.9	76.2	71.6	69.5	77.5	77.8
Heavy Trucks:	80.7	78.9	74.3	72.3	80.2	80.5
Vehicle Noise:	83.1	81.3	76.7	74.7	82.6	82.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2,016	6,374	20,158	63,744
CNEL:	2,156	6,819	21,564	68,190

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C w/SR-905  
 Road Name: New SR-905 Facility  
 Road Segment: East of La Media Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 73,082 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 7,308 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.50	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-2.03	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-3.28	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.2	71.4	66.8	64.8	72.7	73.0
Medium Trucks:	77.3	75.5	70.9	68.9	76.8	77.1
Heavy Trucks:	80.0	78.2	73.7	71.6	79.6	79.9
Vehicle Noise:	82.4	80.6	76.1	74.0	82.0	82.3

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,730	5,470	17,298	54,702
CNEL:	1,850	5,852	18,505	58,517

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Otay Mesa Road  
 Road Segment: Heritage Rd. To Cactus Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 29,860 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,986 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 88 feet		VehicleType		Day	Evening	Night	Daily
<b>Site Data</b>		Autos:		80.0%	7.0%	13.0%	72.00%
Barrier Height: 0.0 feet		Medium Trucks:		80.0%	7.0%	13.0%	16.00%
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:		80.0%	7.0%	13.0%	12.00%
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:		0.000			
Barrier Distance to Observer: 10.0 feet		Medium Trucks:		2.297			
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:		8.006		Grade Adjustment: 0.0	
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:		100.941			
Road Grade: 0.0%		Medium Trucks:		100.853			
Left View: -90.0 degrees		Heavy Trucks:		100.861			
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.62	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-5.92	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-7.17	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.5	63.0	60.9	68.8	69.1
Medium Trucks:	73.4	71.6	67.1	65.0	72.9	73.2
Heavy Trucks:	76.1	74.4	69.8	67.7	75.7	76.0
Vehicle Noise:	78.5	76.8	72.2	70.1	78.1	78.4

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	707	2,235	7,068	22,350
CNEL:	756	2,391	7,561	23,909

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Otay Mesa Road  
 Road Segment: Cactus Rd. to Britannia Blvd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 32,830 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 3,283 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.03	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-5.51	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-6.75	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.9	63.4	61.3	69.3	69.5
Medium Trucks:	73.8	72.0	67.5	65.4	73.3	73.6
Heavy Trucks:	76.5	74.8	70.2	68.1	76.1	76.4
Vehicle Noise:	78.9	77.2	72.6	70.5	78.5	78.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	777	2,457	7,771	24,573
CNEL:	831	2,629	8,313	26,287

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: SR-125 to Harvest Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 33,340 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 3,334 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 87 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos:	101.157				
Road Grade: 0.0%		Medium Trucks:	101.070				
Left View: -90.0 degrees		Heavy Trucks:	101.078				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.51	-3.13	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-5.02	-3.13	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-6.27	-3.13	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	66.8	62.3	60.2	68.1	68.4
Medium Trucks:	72.9	71.1	66.5	64.4	72.4	72.7
Heavy Trucks:	76.0	74.2	69.7	67.6	75.5	75.8
Vehicle Noise:	78.2	76.4	71.9	69.8	77.8	78.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	658	2,079	6,575	20,793
CNEL:	703	2,224	7,034	22,243

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: Harvest Rd. to Sanyo Ave.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 12,870 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,287 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 74 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 103.711					
Road Grade: 0.0%		Medium Trucks: 103.626					
Left View: -90.0 degrees		Heavy Trucks: 103.634					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.63	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-9.16	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-10.41	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	62.6	58.0	55.9	63.9	64.2
Medium Trucks:	68.6	66.8	62.3	60.2	68.2	68.5
Heavy Trucks:	71.7	70.0	65.4	63.3	71.3	71.6
Vehicle Noise:	74.0	72.2	67.6	65.6	73.5	73.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	248	783	2,476	7,829
CNEL:	265	837	2,648	8,375

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: Sanyo Ave. to Vann Centre

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	5,270 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	527 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.53	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-12.07	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-13.32	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.5	55.7	51.2	49.1	57.1	57.4
Medium Trucks:	62.2	60.4	55.9	53.8	61.7	62.0
Heavy Trucks:	66.2	64.4	59.9	57.8	65.8	66.1
Vehicle Noise:	68.1	66.3	61.7	59.7	67.6	67.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	201	636	2,011
CNEL:	68	215	680	2,151

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: Vann Centre to Enrico Fermi Dr.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	5,480 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	548 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.36	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-11.90	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-13.15	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.7	55.9	51.4	49.3	57.2	57.5
Medium Trucks:	62.3	60.6	56.0	53.9	61.9	62.2
Heavy Trucks:	66.4	64.6	60.1	58.0	65.9	66.2
Vehicle Noise:	68.2	66.5	61.9	59.8	67.8	68.1

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	209	661	2,091
CNEL:	71	224	707	2,237

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Old Otay Mesa Road  
 Road Segment: Enrico Fermi Dr. to Alta Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 16,060 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,606 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 40 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 24 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	109.458				
Road Grade: 0.0%		Medium Trucks:	109.377				
Left View: -90.0 degrees		Heavy Trucks:	109.385				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.70	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-7.23	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-8.48	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.3	60.6	56.0	53.9	61.9	62.2
Medium Trucks:	67.0	65.3	60.7	58.6	66.6	66.9
Heavy Trucks:	71.0	69.3	64.7	62.6	70.6	70.9
Vehicle Noise:	72.9	71.1	66.6	64.5	72.5	72.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	194	613	1,938	6,127
CNEL:	207	655	2,073	6,555

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Airway Road  
 Road Segment: La Media Rd. to SR-905

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	9,700 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	970 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	14 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.891					
Road Grade:	0.0%	Medium Trucks: 109.810					
Left View:	-90.0 degrees	Heavy Trucks: 109.818					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.88	-3.49	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-9.42	-3.49	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-10.67	-3.49	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.1	58.4	53.8	51.7	59.7	60.0
Medium Trucks:	64.8	63.1	58.5	56.4	64.4	64.7
Heavy Trucks:	68.8	67.1	62.5	60.4	68.4	68.7
Vehicle Noise:	70.7	68.9	64.4	62.3	70.3	70.5

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	369	1,166	3,686
CNEL:	125	394	1,247	3,943

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Airway Road  
 Road Segment: SR-905 to Sanyo Ave.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	6,600 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	660 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	50 mph	Vehicle Mix					
Near/Far Lane Distance:	74 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 103.711					
Road Grade:	0.0%	Medium Trucks: 103.626					
Left View:	-90.0 degrees	Heavy Trucks: 103.634					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-5.53	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-12.06	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-13.31	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.4	59.7	55.1	53.0	61.0	61.3
Medium Trucks:	65.7	63.9	59.4	57.3	65.3	65.6
Heavy Trucks:	68.8	67.1	62.5	60.4	68.4	68.7
Vehicle Noise:	71.1	69.3	64.7	62.7	70.6	70.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	127	401	1,270	4,015
CNEL:	136	429	1,358	4,295

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Airway Road  
 Road Segment: Sanyo Ave. to Paseo de La Ameri

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 16,030 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,603 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 74 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 103.711					
Road Grade: 0.0%		Medium Trucks: 103.626					
Left View: -90.0 degrees		Heavy Trucks: 103.634					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.67	-3.24	0.00	-1.04	0.000	0.000
Medium Trucks:	81.00	-8.20	-3.23	0.00	-1.15	0.000	0.000
Heavy Trucks:	85.38	-9.45	-3.23	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.5	59.0	56.9	64.9	65.1
Medium Trucks:	69.6	67.8	63.2	61.2	69.1	69.4
Heavy Trucks:	72.7	70.9	66.4	64.3	72.3	72.5
Vehicle Noise:	74.9	73.2	68.6	66.5	74.5	74.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	308	975	3,083	9,751
CNEL:	330	1,043	3,299	10,431

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Airway Road  
 Road Segment: Paseo de La Americas to Michael

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	4,090 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	409 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.64	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-13.17	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-14.42	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	54.6	50.1	48.0	56.0	56.3
Medium Trucks:	61.1	59.3	54.8	52.7	60.6	60.9
Heavy Trucks:	65.1	63.3	58.8	56.7	64.7	65.0
Vehicle Noise:	67.0	65.2	60.6	58.6	66.5	66.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	156	493	1,560
CNEL:	53	167	528	1,669

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Airway Road  
 Road Segment: Michael Faraday Dr. to Enrico Fer

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt):	5,380 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	538 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	<b>Vehicle Mix</b>					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.44	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-11.98	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-13.23	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.6	55.8	51.3	49.2	57.2	57.5
Medium Trucks:	62.3	60.5	55.9	53.9	61.8	62.1
Heavy Trucks:	66.3	64.5	60.0	57.9	65.9	66.2
Vehicle Noise:	68.1	66.4	61.8	59.7	67.7	68.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	205	649	2,053
CNEL:	69	220	694	2,196

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Siempre Viva Road  
 Road Segment: Drucker Ln. to SR-905

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 21,180 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,118 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.88	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-7.41	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-8.66	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.0	61.5	59.4	67.3	67.6
Medium Trucks:	71.9	70.1	65.6	63.5	71.4	71.7
Heavy Trucks:	74.6	72.9	68.3	66.2	74.2	74.5
Vehicle Noise:	77.0	75.3	70.7	68.6	76.6	76.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	501	1,585	5,013	15,853
CNEL:	536	1,696	5,363	16,959

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Siempre Viva Road  
 Road Segment: SR-905 to Paseo de Las America

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 53,620 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 5,362 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.16	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-3.37	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-4.62	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	70.1	65.5	63.4	71.4	71.7
Medium Trucks:	75.9	74.2	69.6	67.5	75.5	75.8
Heavy Trucks:	78.7	76.9	72.3	70.3	78.2	78.5
Vehicle Noise:	81.1	79.3	74.7	72.7	80.6	80.9

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,269	4,013	12,692	40,135
CNEL:	1,358	4,293	13,577	42,934

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Siempre Viva Road  
 Road Segment: Paseo de Las Americas to Michae

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 22,180 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 2,218 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 50 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 107.238					
Road Grade: 0.0%		Medium Trucks: 107.156					
Left View: -90.0 degrees		Heavy Trucks: 107.164					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.20	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-6.34	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-7.59	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.5	59.0	56.9	64.8	65.1
Medium Trucks:	69.7	68.0	63.4	61.3	69.3	69.6
Heavy Trucks:	73.3	71.5	67.0	64.9	72.8	73.1
Vehicle Noise:	75.3	73.6	69.0	66.9	74.9	75.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	339	1,072	3,390	10,721
CNEL:	363	1,147	3,627	11,469

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Siempre Viva Road  
 Road Segment: Michael Faraday Dr. to Enrico Fer

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 19,090 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,909 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 50 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 107.238					
Road Grade: 0.0%		Medium Trucks: 107.156					
Left View: -90.0 degrees		Heavy Trucks: 107.164					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.46	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-6.99	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-8.24	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	62.9	58.3	56.2	64.2	64.5
Medium Trucks:	69.1	67.3	62.8	60.7	68.6	68.9
Heavy Trucks:	72.6	70.9	66.3	64.2	72.2	72.5
Vehicle Noise:	74.7	72.9	68.4	66.3	74.2	74.5

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	292	923	2,918	9,227
CNEL:	312	987	3,121	9,871

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: SR-125  
 Road Segment: North of Otay Mesa Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 13,490 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,349 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 64 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 105.361					
Road Grade: 0.0%		Medium Trucks: 105.277					
Left View: -90.0 degrees		Heavy Trucks: 105.285					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.84	-3.31	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-9.37	-3.30	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-10.62	-3.30	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.9	59.3	57.2	65.2	65.5
Medium Trucks:	69.7	68.0	63.4	61.3	69.3	69.6
Heavy Trucks:	72.5	70.7	66.2	64.1	72.0	72.3
Vehicle Noise:	74.9	73.1	68.6	66.5	74.4	74.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	306	967	3,059	9,673
CNEL:	327	1,035	3,272	10,348

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Existing SR-905  
 Road Segment: South of Siempre Viva Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
<b>Highway Data</b>		<b>Site Conditions (Hard = 10, Soft = 15)</b>					
Average Daily Traffic (Adt): 76,130 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 7,613 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		<b>Vehicle Mix</b>					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
<b>Site Data</b>		Autos:	80.0%	7.0%	13.0%	72.00%	
Barrier Height: 0.0 feet		Medium Trucks:	80.0%	7.0%	13.0%	16.00%	
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	80.0%	7.0%	13.0%	12.00%	
Centerline Dist. to Barrier: 100.0 feet		<b>Noise Source Elevations (in feet)</b>					
Centerline Dist. to Observer: 110.0 feet		Autos:	0.000				
Barrier Distance to Observer: 10.0 feet		Medium Trucks:	2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
Pad Elevation: 0.0 feet		<b>Lane Equivalent Distance (in feet)</b>					
Road Elevation: 0.0 feet		Autos:	100.941				
Road Grade: 0.0%		Medium Trucks:	100.853				
Left View: -90.0 degrees		Heavy Trucks:	100.861				
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.68	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-1.85	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-3.10	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.3	71.6	67.0	64.9	72.9	73.2
Medium Trucks:	77.4	75.7	71.1	69.0	77.0	77.3
Heavy Trucks:	80.2	78.4	73.9	71.8	79.7	80.0
Vehicle Noise:	82.6	80.8	76.3	74.2	82.1	82.4

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	1,802	5,698	18,020	56,983
CNEL:	1,928	6,096	19,277	60,958

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Sanyo Avenue  
 Road Segment: Otay Mesa Rd. to Airway Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 13,554 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,355 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 50 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 107.238					
Road Grade: 0.0%		Medium Trucks: 107.156					
Left View: -90.0 degrees		Heavy Trucks: 107.164					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.94	-3.38	0.00	-1.04	0.000	0.000
Medium Trucks:	79.45	-8.48	-3.38	0.00	-1.15	0.000	0.000
Heavy Trucks:	84.25	-9.73	-3.38	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.1	61.4	56.8	54.7	62.7	63.0
Medium Trucks:	67.6	65.8	61.3	59.2	67.2	67.4
Heavy Trucks:	71.1	69.4	64.8	62.7	70.7	71.0
Vehicle Noise:	73.2	71.4	66.9	64.8	72.7	73.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	207	655	2,072	6,551
CNEL:	222	701	2,216	7,008

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Enrico Fermi Drive  
 Road Segment: Otay Mesa Rd. to Airway Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 16,830 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,683 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 24 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 109.458					
Road Grade: 0.0%		Medium Trucks: 109.377					
Left View: -90.0 degrees		Heavy Trucks: 109.385					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.49	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-7.02	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-8.27	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.5	60.8	56.2	54.1	62.1	62.4
Medium Trucks:	67.2	65.5	60.9	58.8	66.8	67.1
Heavy Trucks:	71.3	69.5	64.9	62.8	70.8	71.1
Vehicle Noise:	73.1	71.3	66.8	64.7	72.7	73.0

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	203	642	2,030	6,421
CNEL:	217	687	2,172	6,869

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Alta Road  
 Road Segment: Calzada De La Fuente to Paseo D

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 10,350 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 1,035 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 24 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 109.458					
Road Grade: 0.0%		Medium Trucks: 109.377					
Left View: -90.0 degrees		Heavy Trucks: 109.385					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.60	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-9.14	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-10.38	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.4	58.7	54.1	52.0	60.0	60.3
Medium Trucks:	65.1	63.4	58.8	56.7	64.7	65.0
Heavy Trucks:	69.1	67.4	62.8	60.7	68.7	69.0
Vehicle Noise:	71.0	69.2	64.7	62.6	70.6	70.8

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	125	395	1,249	3,949
CNEL:	134	422	1,336	4,224

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: Alta Road  
 Road Segment: Paseo De La Fuente to Otay Mes

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	9,950 vehicles	Autos: 10					
Peak Hour Percentage:	10%	Medium Trucks (2 Axles): 10					
Peak Hour Volume:	995 vehicles	Heavy Trucks (3+ Axles): 10					
Vehicle Speed:	40 mph	Vehicle Mix					
Near/Far Lane Distance:	24 feet	VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height:	0.0 feet	Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier:	100.0 feet	Noise Source Elevations (in feet)					
Centerline Dist. to Observer:	110.0 feet	Autos: 0.000					
Barrier Distance to Observer:	10.0 feet	Medium Trucks: 2.297					
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)					
Road Elevation:	0.0 feet	Autos: 109.458					
Road Grade:	0.0%	Medium Trucks: 109.377					
Left View:	-90.0 degrees	Heavy Trucks: 109.385					
Right View:	90.0 degrees						

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.77	-3.47	0.00	-1.04	0.000	0.000
Medium Trucks:	77.72	-9.31	-3.47	0.00	-1.15	0.000	0.000
Heavy Trucks:	82.99	-10.56	-3.47	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.3	58.5	53.9	51.9	59.8	60.1
Medium Trucks:	64.9	63.2	58.6	56.5	64.5	64.8
Heavy Trucks:	69.0	67.2	62.6	60.6	68.5	68.8
Vehicle Noise:	70.8	69.1	64.5	62.4	70.4	70.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	380	1,200	3,796
CNEL:	128	406	1,284	4,061

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: New SR-905 Facility  
 Road Segment: West of La Media Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 102,240 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 10,224 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	5.96	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-0.57	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-1.82	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.6	72.9	68.3	66.2	74.2	74.5
Medium Trucks:	78.7	77.0	72.4	70.3	78.3	78.6
Heavy Trucks:	81.5	79.7	75.1	73.1	81.0	81.3
Vehicle Noise:	83.9	82.1	77.5	75.5	83.4	83.7

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2,420	7,653	24,200	76,527
CNEL:	2,589	8,186	25,888	81,864

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Ex + C + P w/SR-905  
 Road Name: New SR-905 Facility  
 Road Segment: East of La Media Rd.

Project Name: Otay Business Park  
 Job Number: 3643  
 Analyst: J. Stephens

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 90,160 vehicles		Autos: 10					
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 10					
Peak Hour Volume: 9,016 vehicles		Heavy Trucks (3+ Axles): 10					
Vehicle Speed: 55 mph		Vehicle Mix					
Near/Far Lane Distance: 88 feet		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 80.0% 7.0% 13.0% 72.00%					
Barrier Height: 0.0 feet		Medium Trucks: 80.0% 7.0% 13.0% 16.00%					
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 80.0% 7.0% 13.0% 12.00%					
Centerline Dist. to Barrier: 100.0 feet		Noise Source Elevations (in feet)					
Centerline Dist. to Observer: 110.0 feet		Autos: 0.000					
Barrier Distance to Observer: 10.0 feet		Medium Trucks: 2.297					
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)					
Road Elevation: 0.0 feet		Autos: 100.941					
Road Grade: 0.0%		Medium Trucks: 100.853					
Left View: -90.0 degrees		Heavy Trucks: 100.861					
Right View: 90.0 degrees							

## FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	5.41	-3.12	0.00	-1.04	0.000	0.000
Medium Trucks:	82.40	-1.12	-3.12	0.00	-1.15	0.000	0.000
Heavy Trucks:	86.40	-2.37	-3.12	0.00	-1.43	0.000	0.000

## Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.1	72.3	67.8	65.7	73.6	73.9
Medium Trucks:	78.2	76.4	71.8	69.8	77.7	78.0
Heavy Trucks:	80.9	79.2	74.6	72.5	80.5	80.8
Vehicle Noise:	83.3	81.6	77.0	74.9	82.9	83.2

## Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2,134	6,748	21,341	67,485
CNEL:	2,283	7,219	22,829	72,192